
The 54th Report on

FOOD PRODUCTS

And the 42nd Report on

DRUG PRODUCTS, 1949

Bulletin 549

April, 1951



H. J. FISHER

Chief Chemist

**THE CONNECTICUT AGRICULTURAL EXPERIMENT
STATION, NEW HAVEN, CONNECTICUT**



Digitized by the Internet Archive
in 2012 with funding from
LYRASIS members and Sloan Foundation

CONTENTS AND SUMMARY

Material	Page	FROM		Total	Adulterated, misbranded or otherwise questionable
		Food and Drug Commission	Other sources		
<i>Foods</i>					
Baked products	6	9	....	9	6
Beverages, carbonated, etc.	6	60	3	63	7
Cheese	8	4	....	4	2
Coffee and tea	9	2	....	2	....
Confectionery:					
Chocolate coated fruits in "cordial"	9	28	....	28	28
"Dietetic" confectionery	9	19	....	19	11
Other candies and chewing gum	12	39	....	39	31
Contaminated or decomposed foods	15	108	32	140	60
Deceptive packaging	16	54	....	54	51
Eggs	16	1	1	2	....
Extracts and flavors	16	9	....	9	7
Fats and oils:					
Butter and oleomargarine	17	4	....	4	1
Nut butters	18	2	....	2	1
Olive oil	18	23	3	26	7
Other oils and fats	18	43	9	52	31
Fish and shellfish	24	34	....	34	13
Flour	25	....	1	1	....
Fruit, canned	25	9	1	10	2
Fruit juices	26	12	5	17	5
Jams and jellies	27	3	....	3	....
Meat and meat products	28	5	1	6	2
Milk and milk products:					
Condensed milk	28	....	1	1	....
Cream	28	2	....	2	....
Unfortified milk	29	4	43	47	....
Vitamin D milk	29	157	....	157	11
Pickles	29	3	....	3	2
Popcorn	32	2	....	2	2
Salad dressings and mayonnaise:					
Mayonnaise	32	9	....	9	1
French dressing	34	3	....	3	2
Other salad dressings	34	4	....	4	3
Sauerkraut	35	40	....	40	21

CONTENTS AND SUMMARY (Continued)

Material	Page	FROM		Total	Adulterated, misbranded or otherwise questionable
		Food and Drug Commission	Other sources		
Spaghetti and spaghetti sauce	39	6	....	6	4
Spices and condiments	40	9	2	11	3
Spray residues	41	83	12	95	25
Syrups:					
Fruit, chocolate, coffee and vanilla flavored syrups	42	30	....	30	29
Maple syrup	43	3	....	3	....
Other pancake syrups	44	16	1	17	6
Vegetable products:					
Canned tomatoes	45	8	....	8	....
Tomato juice	45	13	....	13	....
Tomato paste and purée	46	19	2	21	5
Other canned vegetables	46	10	1	11	7
Vinegar	48	16	3	19	11
Water	48	....	15	15	3
Miscellaneous:					
Lithium chloride salt substitutes	50	6	1	7	7
Poisonous crayons	51	....	3	3	1
Emulsifiers for ice cream mixes	54	3	....	3	2
Other miscellaneous products	55	13	109	122	5
Totals		927	239	1,166	405
<i>Drugs and Devices</i>					
Boric acid solution	56	....	5	5	2
Cod and halibut liver oils	56	11	....	11	4
Neo Silvol solution	58	....	5	5	2
Riboflavin tablets	58	4	....	4	....
Rubber prophylactics	58	17	....	17	2
Miscellaneous drugs	58	16	15	31	9
Totals		48	25	73	19
Cosmetics	60	13	2	15	4
Collaborative	62	....	1,568	1,568	....
Total for all		988	1,834	2,822	428
Babcock glassware, etc.	62	....	1,687	1,687	173

**The Fifty-Fourth Report on
FOOD PRODUCTS
and the Forty-Second Report on
DRUG PRODUCTS
1949**

H. J. Fisher

This report summarizes examinations of foods, drugs, cosmetics and miscellaneous materials submitted by the Food and Drug Commissioner and the Commissioner of Farms and Markets during the calendar year 1949, as well as like materials analyzed for health departments and others. The numbers of samples of all kinds analyzed for the Federal, State and Station departments and not reported in other bulletins are also listed.

Twelve hundred and fifty-four samples of foods, drugs, cosmetics and miscellaneous materials were examined during the year, 121 more than in 1948. This increase was more than accounted for by additional food and miscellaneous samples, because there was a decline in total drug samples of 25. Since 1946, when 203 official drug samples were submitted by the Commissioner, to 1949, when 48 official samples were received, there has been a drop in the number of drug samples submitted annually of 155, or 76 per cent.

More samples were submitted for examination for the presence of insect or rodent infestation or other filth than for any other purpose; vitamin D milks submitted by the Department of Farms and Markets for assay for vitamin D by feeding to rats came next; confectionery samples were third, apples tested for spray residue fourth, fats and oils fifth, and beverages sixth.

Mr. Seymour Linsley resigned as aide in running the infrared spectrophotometer on June 15. Miss Ellen-Marie Herr was employed on a temporary basis to make spectrographic analyses from July 1 to September 10; later, the continued increase in spectrographic work made it necessary to have a permanent assistant for Mr. Mathis, and Mr. Richard Botsford (B.S., University of Connecticut) was appointed to this position on December 16. Because of the large increase in secretarial work, Miss Lillian Goffi was employed as a second secretary beginning July 13.

The writer wishes to express his gratitude to all the members of the staff for their loyal and efficient work. It is they who are primarily responsible for the contents of this bulletin.

FOODS

Baked Products

Three samples of bread and six of cookies were submitted by the Commissioner.

One sample of bread submitted because of a complaint of off flavor was found to be of good quality; another sample that the purchaser thought contained mouse excreta actually contained only a few particles of charred dough. The third sample, *E.S.-219*, 12 loaves of "Master Loaf Enriched White Bread", baked by Borck and Stevens, Inc., Bridgeport, Conn., averaged $\frac{3}{4}$ oz. short weight per loaf.

The cookie samples were the following:

E.S.-277. Butter Rings. Stella D'Oro Biscuit Co., Inc., New York, N. Y. The ingredient statement listed only "flour, sugar, eggs, leavening, vanilla, vegetable shortening"; because no butter was present the name "Butter Rings" was misleading.

A.F.-378. Farm Butter Cookies. H. W. Clark Biscuit Co., North Adams, Mass. The total fat content of these cookies was 14.75 per cent, but the Reichert-Meissl value of this fat (1.17) indicated that the butter content of the cookies did not exceed 0.74 per cent, which is too little to justify the name "Butter Cookies".

A.F.-614. Weston's Banana Flavored Patties. Weston Biscuit Co., Passaic, N. J. Because the banana flavoring was artificial, these cookies should have been labelled "Imitation Banana Flavored"; the pictures of three large bananas on each side of the carton were also misleading.

A.F.-616. Weston's Coconut Gems. Weston Biscuit Co., Passaic, N. J. Because cocoanut was declared as present and the cookies actually did have a true cocoanut flavor, this sample was passed.

A.F.-613. Weston's Mayfair Sandwich. Weston Biscuit Co., Passaic, N. J. No vanilla was declared as an ingredient but "artificial flavor" was. The statement "You'll enjoy the rich vanilla-creme flavor" was therefore misleading.

A.F.-615. Weston's Pineapple Wafers. Weston Biscuit Co., Passaic, N. J. While "crushed pineapple" was declared as an ingredient, the flavor was artificial and these cookies should therefore have been labelled "Imitation Pineapple Wafers"; the pictures of pineapples on all four sides of the carton were also misleading.

Beverages, Carbonated, etc.

Forty-nine samples of carbonated beverages were examined for the Commissioner. No sample was found to contain saccharin or undeclared artificial color or to contain less than the 5 per cent of sugar required by the carbonated beverage law. Approximate sugar content (solids by

refraction) ranged from 7.04 to 14.66 per cent and averaged 11.87 per cent, about 1 per cent more than was found in 1947 and 1948. One sample, *E.S.-335, Miscoe Orange Dry*, bottled by Miscoe Spring Water Co., Mendon, Mass., labelled as containing "orange juice with a dash of lemon, cane sugar, fruit oils, spring water carbonated", had an ash content equivalent to only 1 per cent of orange juice, which is insufficient to justify the claim for the presence of orange juice.

Eleven official samples of uncarbonated beverages were examined as follows:

K.N.-142. Bireley's Drink, Berry Flavor. Bireley's Beverages, Kensington, Conn. Labelled "Contains water, orange juice, grape juice, sugar, citric acid, artificial flavor and color." Analysis showed sugar, 13.07; and ash, 0.045 per cent, indicating possibly 11 per cent of juice. Should have been labelled "Imitation Berry Flavor".

E.C.-297. Cala-Orange. Cola-Fruit Juice Co., Pawtucket, R. I. Labelled "To the pure orange juice there has been added concentrated juice containing oils & minerals of tree-ripened Valencia oranges, 1/10 of 1% Sobinate." Analysis showed sugar, 14.29, and ash, 0.063 per cent, equivalent to 15 per cent of juice.

A.F.-605. Cherry Cider Drink. Poles Products & Preserving Co., Hartford, Conn. This was labelled "Made of cherry juice, water, fruit acid and true fruit flavor, 1/10 of 1% benzoate of soda." The sugar content was 11.00 per cent; undeclared artificial color was present.

J.W.-120. Delicious Sunlife Grape Nectar. Sunvita Fruit Juice Corp., Waldwick, N. J. Labelled "There has been added to each 32 oz. of Sunlife Grape Nectar 1100 U.S.P. units of vitamin C . . . Prepared with water, real grape wine flavor, pure grape juice, U. S. certified color, citric acid and pure granulated sugar and vitamin C. Preserved with less than 1/10 of 1% benzoate of soda." Analysis showed 1820 of the former U.S.P. units of vitamin C in 32 fluid ounces, which met the labelled claim, but the use of these obsolete units was itself misleading.

E.C.-326 and E.S.-416. Fresh-A Orange. Fresh-A Juice Co., Lawrence, Mass. This beverage was labelled as follows:

"To this product has been added: 2200 International Units of Vitamin C. The daily minimum requirements according to the U. S. Food and Drug Administration are as follows: Vitamin C—for infants not over one year old, 200 I.U. or 1 six oz. size glass daily—for children 1 to 12 years, 400 I.U. or 2 six oz. size glasses daily—for adults, 600 I.U. or 3 six oz. size glasses daily.

"To the natural strength orange juice there has been added concentrated juice containing oils and minerals of tree ripened California oranges, water, pure cane sugar, citric acid, Vitamin C, less than 1/10 of 1% benzoate of soda. This product does not contain any artificial color or flavor."

Analysis showed 0.21 milligram of ascorbic acid per cc., which is equivalent to 7,896 "international units" per half gallon, a concentration considerably in excess of the 2,200 units claimed. However, the so-called "international unit" of vitamin C has been obsolete since April 1, 1947, and the statement of the concentration of vitamin C in terms of this outmoded very small unit serves no purpose except to mislead the consumer into thinking the beverage is a rich instead of a poor source of the vitamin. Further, the label statement is misleading in giving the impression that the U. S. Food and Drug Administration recommends drinking "Fresh-A Orange".

A.F.-611. Grape Smash Punch. Poles Products & Preserving Co., Hartford, Conn. Labelled "Made with real juice—Contains grape flavor, sugar, fruit acid, water and artificial color, 1/10 of 1% benzoate of soda." Passed in default of a plant inspection.

K.F.-414. Orange Drink. Vendo Dairy, Waterbury, Conn. This was labelled "Contains water, orange concentrate, sugar, color added." Analysis showed sugar, 13.37, and ash, 0.025 per cent, equivalent to 6 per cent of orange juice. A product labelled "Orange Drink" should contain at least 15 per cent of orange juice.

K.F.-294. Pal Orange Drink, Pasteurized Pal Ade. Pal Bottling Co., Waterbury, Conn. Ash content was 0.059 per cent, corresponding to 14 per cent of orange juice, which is insufficient for an orangeade.

K.C.-103 and K.F.-403. Vitamin Hi C Enriched Orangeade. Juice Industries, Inc., Dunedin, Fla. This drink was labelled "This 46 oz. can contains at least 180 milligrams of vitamin C"; analysis showed 187 milligrams of ascorbic acid (vitamin C) in 46 ounces.

Three samples of wine (muscatel, sherry and port) analyzed for a manufacturer contained 19.90, 19.90 and 19.74 per cent of alcohol by volume and 11.74, 2.89 and 9.74 per cent of sugar, respectively.

Cheese

The following four samples of grated cheese were examined for the Commissioner; two were passed and two were adulterated or misbranded:

E.C.-201. 4CCCC Brand Grated Romano Cheese. Brooklyn Cheese Packing Co., Brooklyn, N. Y. Water, 26.65 per cent; no starch or lactose; passed as labelled.

J.C.-229. Our Grated Cheese. Our Foods Co., Waterbury, Conn. Water, 11.70; lactose, 13.63; dry skim milk, 24 per cent. Adulterated and misbranded.

K.F.-307. P.G.A. Brand Grated Romano Cheese. Progressive Grocers' Association, Waterbury, Conn. Water, 27.20; lactose, 0.44 per cent; no starch; passed as labelled.

K.C.-83. Town Hall Brand American Grated. Wm. Faehndrich, Inc., New York, N. Y. This sample was labelled "Made from whole milk American cheese with added skim milk solids"; the can was slack filled (63 per cent).

Coffee and Tea

One sample each of coffee and tea was examined for the Commissioner:

L.R.-18. Orange Pekoe and Pekoe India Ceylon Tea. Jos. Tetley & Co., Inc., New York, N. Y. No foreign material was found.

K.N.-188. Silver City Coffee. Poland Bros., New York, N. Y. No chicory was found; the odor and flavor were satisfactory.

Confectionery

Seventy-two samples of candies and 14 of chewing gum were examined for the Commissioner. Seventy of these were adulterated or misbranded and 16 were passed.

Chocolate Coated Fruits in "Cordial"

Twenty-eight of the candies were chocolate coated fruits in syrup and were labelled "in cordial". Webster's Dictionary defines "cordial" as "aromatized and sweetened spirit, used as a beverage; a liqueur." None of these candies contained any alcohol and consequently none contained any cordial. As a matter of fact, the addition of alcohol to confectionery is forbidden by the Food, Drug and Cosmetic Act [G.S. 3939(d)] and, therefore, no cordial fruits may be legally sold in Connecticut. A practice appears to have grown up in the confectionery trade of applying the name "Fruits in Cordial," which once properly described a legal product, to chocolate coated fruits in non-alcoholic sugar syrup. No doubt candy manufacturers understand that the term "in cordial" no longer means what it says, but the law intends the labels of food products to be addressed to the average consumer, not to trade experts, and it does not permit a definitely false statement to be made about a product just because everyone in the trade knows that it is a lie.

Some of the samples examined were further adulterated because they did not contain the fruits that were claimed to be present. All samples are listed in Table 1.

"Dietetic" Confectionery

Seventeen of the candy samples and two of the chewing gums were of the so-called "dietetic" variety; that is, they were low in carbohydrates and designed primarily for the use of diabetics. Several samples contained saccharin, a synthetic sweetening agent having no food value whose use has been permitted in special dietary foods only; they would have been passed had they been any type of food except confectionery. However, both the State and Federal food, drug and cosmetic acts class as adulterated any confectionery that bears or contains "any . . . non-nutritive article or substance except harmless coloring, harmless flavoring, harmless resinous glaze

TABLE 1. CHOCOLATE COATED FRUITS IN "CORDIAL"

No.	Manufacturer and brand	Remarks
K.F.-487	Banquet Candy Corp., New York, N. Y. <i>Banquet Double Covered Milk Chocolate Cordial Cherries</i>	No cordial present; adulterated.
K.F.-475	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Cordial Cherry</i>	No cordial present; adulterated.
K.F.-477	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Cordial Cherry</i>	No cordial present; adulterated.
E.S.-446	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Cordial Cherry</i>	No cordial present; adulterated.
E.S.-449	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Cordial Cherry</i>	No cordial present; adulterated.
E.S.-451	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Cordial Cherry</i>	No cordial present; adulterated.
E.S.-452	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Cordial Cherry</i>	No cordial present; adulterated.
E.S.-456	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Cordial Cherry</i>	No cordial present; adulterated.
E.S.-457	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Cordial Cherry</i>	No cordial present; adulterated.
J.C.-25	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Cordial Cherry</i>	No cordial present; adulterated.
J.C.-26	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Double Dipped Strawberry in Cordial</i>	Cherries and raisins present but no strawberries or cordial; adulterated.
J.C.-27	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Double Dipped Strawberry in Cordial</i>	Raisins present but no strawberries or cordial; adulterated.
S.O.-65	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Double Dipped Strawberry in Cordial</i>	Cherries present but no strawberries or cordial; adulterated.
S.O.-66	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Double Dipped Strawberry in Cordial</i>	Cherries present but no strawberries or cordial; adulterated.
E.S.-455	Marlon Confections Corp., New York, N. Y. <i>Marlon Chocolate Pineapple Cordial</i>	No cordial present; net weight not declared; adulterated and misbranded.
E.S.-448	Marlon Confections Corp., New York, N. Y. <i>Marlon Double Dipped Chocolate Cordial Fruits</i>	Cherries, grapes and pineapple present as declared, but no declared strawberries, raspberries or cordial; adulterated.
E.S.-450	Marlon Confections Corp., New York, N. Y. <i>Marlon Double Dipped Chocolate Cordial Fruits</i>	Cherries, grapes and pineapple present as declared, but only traces of strawberry or raspberry pulp and seeds; no cordial present; adulterated.

TABLE 1. CHOCOLATE COATED FRUITS IN "CORDIAL" (Concluded)

K.F.-479	Marlon Confections Corp., New York, N. Y. <i>Marlon Gold Ribbon Chocolate Cordial Cherries</i>	No cordial present; adulterated.
K.F.-476	Marlon Confections Corp., New York, N. Y. <i>Marlon Gold Ribbon Milk Chocolate Cordial Cherries</i>	No cordial present; adulterated.
K.F.-486	Marlon Confections Corp., New York, N. Y. <i>Marlon Gold Ribbon Milk Chocolate Cordial Cherries</i>	No cordial present; adulterated.
K.F.-474	Marlon Confections Corp., New York, N. Y. <i>Marlon Milk Chocolate Cordial Cherries</i>	No cordial present; adulterated.
K.N.-246	Marlon Confections Corp., New York, N. Y. <i>Marlon Milk Chocolate Cordial Cherries</i>	No cordial present; adulterated.
K.N.-247	Marlon Confections Corp., New York, N. Y. <i>Marlon Milk Chocolate Cordial Cherries</i>	No cordial present; adulterated.
E.S.-447	Marlon Confections Corp., New York, N. Y. <i>Marlon Milk Chocolate Cordial Cherries</i>	No cordial present; adulterated.
K.F.-481	Phillips Sweets, Boston, Mass. <i>Phillips the Champagne of Cherries Chocolate Covered Cordial Cherries</i>	No cordial present; adulterated.
E.S.-453	Phillips Sweets, Boston, Mass. <i>Phillips the Champagne of Cherries Chocolate Covered Cordial Cherries</i>	No cordial present; deceptively packed; adulterated and misbranded.
E.S.-454	Queen Anne Candy Co., Hammond, Ind. <i>Queen Anne Cherry Queen Cordial Cherries</i>	No cordial present; adulterated.
K.F.-478	Queen Anne Candy Co., Hammond, Ind. <i>Royal Highness Cherries Chocolate Covered in Cordial Cream</i>	No cordial present; adulterated.

not in excess of four-tenths of one per cent, harmless natural gum or pectin," with an exemption for chewing gum of "harmless non-nutritive masticatory substances." Both the Connecticut Food and Drug Commission and officials of the U. S. Food and Drug Administration have interpreted this provision of the law to mean that no confectionery of any kind, whether "dietetic" or not, may contain saccharin or any other non-nutritive sweetening agent.

Most of the samples examined this year did not contain saccharin but were sweetened with mannitol and sorbitol. These alcohols do not fall strictly in the class of non-nutritive substances because they are metabolized to some extent, and therefore the prohibition against the use of non-nutritive substances in confectionery does not apply to them. Because they are much less sweet than is saccharin, candies sweetened with mannitol and sorbitol must contain these compounds in considerable proportion. For this reason the Food and Drug Commissioner was concerned over the possibility that such candies might cause untoward reactions when eaten by diabetics, but when he asked the Connecticut Committee on Foods, Drugs, Cosmetics and Devices for an opinion the Committee replied that the use of these alcohols in confectionery was essentially harmless.

The 19 samples examined are listed in Table 2.

Other Candies and Chewing Gum

K.N.-132. Atomotor Boats. Technical Toy Co., Pasadena, Calif. This bubble gum bore no net weight or ingredient declaration.

K.F.-375. Blow Chewing Gum Whistle. Glenn Confections, Inc., Buffalo, N. Y. Paraffin, 57.16 per cent; passed.

K.C.-110. Bottle O'Pop. G. and B. Candy Co., Dallas, Texas. This sample consisted of a box of 60 small paraffin bottles filled with syrup in four flavors. Total sugar contents of the flavors were as follows: Grape, 6.89; lime, 7.24; orange, 7.66, and strawberry, 7.69 per cent. Sample was adulterated because of the presence of dirt in the syrups.

E.S.-270. Bubble Gum. Net weight not declared.

S.G.-712. Butter Creams. Alice Best Candies, Philadelphia, Pa. This sample was labelled "Made with pure creamery butter," but the Reichert-Meissl value (4.2) of the total fat (6.77 per cent) indicated only 1.19 per cent of butter.

K.F.-393. Candy. This was bulk candy from a dispensing machine. It was mixed with small metal and plastic toys that could easily be swallowed by a child, and was therefore dangerous.

K.F.-445. Candy. Misbranded because unlabelled.

K.C.-120 and 121, K.N.-256 and E.S.-429. Candy Filled Jumbo Ball Pen. These samples were misbranded because they bore no manufacturer's name or address.

K.F.-304 and 305. Candy Novelties. The only labels were rubber-stamped ones that were undecipherable.

TABLE 2. "DIETETIC" CONFECTIONERY

No.	Manufacturer or distributor and brand	Sweetening agent declared	Remarks
A.F.-362	Chicago Dietetic Supply House, Inc., Chicago, Ill. <i>Assorted Cellu Flavors Hard Gum Drops</i>	Saccharin, 5 grains/100 gm.	Adulterated; see text.
A.F.-364	Chicago Dietetic Supply House, Inc., Chicago, Ill. <i>Cellu Saccharin Sweetened Chewing Gum</i>	Saccharin.	Adulterated; see text.
A.F.-363	Chicago Dietetic Supply House, Inc., Chicago, Ill. <i>Cellu Sugar-Free Bars (Chocolate Flavor)</i>	Dulcin, 0.2%.	Adulterated; see text.
E.C.-242	Dietetic Food Co., Inc., Brooklyn, N. Y. <i>Dia-Mel Dietetic Coconut Bar</i>	Sorbitol and mannitol.	Pass.
E.C.-241	Dietetic Food Co., Inc., Brooklyn, N. Y. <i>Dia-Mel Dietetic Fudge Bar</i>	Sorbitol and mannitol.	Pass.
E.C.-240	Dietetic Food Co., Inc., Brooklyn, N. Y. <i>Dia-Mel Dietetic Home-Made Style Chocolates with Fruits and Nuts</i>	Sorbitol and mannitol.	Pass.
K.C.-91	Dietetic Food Co., Inc., Brooklyn, N. Y. <i>Dia-Mel Dietetic Marshmallow Bar</i>	Mannitol and sorbitol.	Pass.
E.C.-243	Dietetic Food Co., Inc., Brooklyn, N. Y. <i>Dia-Mel Dietetic Peppermint Chewing Gum</i>	Mannitol and sorbitol.	Pass.
E.C.-239	Dietetic Food Co., Inc., Brooklyn, N. Y. <i>Dietetic No Food Value Candy, Assorted Flavors</i>	Saccharin, 0.25%.	Adulterated; see text.
E.C.-238	Dietetic Food Co., Inc., Brooklyn, N. Y. <i>Special Dietetic Product Dietetic Candy Substitute</i>	Saccharin, 0.25%.	Adulterated; see text.
K.F.-370	Charles Kilgore Co., Inc., Yonkers, N. Y. <i>Dietician Brand Chocolate Covered Fudge Bar</i>	"Sorbitol and crystalline-sorbitol", 31%; saccharin, 0.01%.	Adulterated because of presence of tricalcium phosphate and saccharin.
K.F.-369	Charles Kilgore Co., Inc., Yonkers, N. Y. <i>Dietician Brand Happy Diet Bar</i>	Mannitol and 0.15% saccharin.	Adulterated; see text.
K.F.-373	Loeb Dietetic Food Co., Inc., New York, N. Y. <i>Loeb Dietetic Fruit Drops</i>	Saccharin, 0.08%.	Adulterated; see text.
E.C.-244	Loeb Dietetic Food Co., Inc., New York, N. Y. <i>Loeb Dietetic Fruitree Gum</i>	"Hexitols".	Pass.
K.F.-372	Loeb Dietetic Food Co., Inc., New York, N. Y. <i>Loeb Dietetic Marshmallow Bar</i>	Mannitol and sorbitol.	Adulterated because of presence of calcium carbonate and kaolin.
K.C.-90	Loeb Dietetic Food Co., Inc., New York, N. Y. <i>Loeb Dietetic Mintmallo Bar</i>	Mannitol and sorbitol.	Adulterated because of presence of calcium carbonate and kaolin.
K.F.-371	Loeb Dietetic Food Co., Inc., New York, N. Y. <i>Loeb Dietetic Spearmint Gum</i>	"Hexitols".	Pass.
A.F.-367	Loeb Dietetic Food Co., Inc., New York, N. Y. <i>Saccharin Sweetened Loeb's Assorted Ice Cream</i>	Saccharin, 0.33%.	Not ice cream but an ice cream mix. Adulterated.
K.C.-92	H. W. Walker & Co., Chicago, Ill. <i>Ditex Diet Chocolate Bar</i>	Sorbitol and mannitol.	Pass.

K.F.-327. Candy Novelty. Lecas Candy Co., Pana, Ill. Sample was deceptively packed and the label was on the bottom where it was not visible to the purchaser.

E.S.-438. Candy Novelty. Prestaloy Co., New Rochelle, N. Y. This sample was identical with *K.C.-120* and *121*, *K.N.-256* and *E.S.-429*, except for the labelling, which included the manufacturer's name and address. It was passed.

E.C.-248. Chewing Gum Novelties. Tecco Products Co., Berkeley, Calif. This sample consisted of black and orange figures that were 97.65 per cent paraffin. Because paraffin was not declared as such but only as "plastic chewing gum base," sample was misbranded.

K.F.-377. Chewing Gum Pipe. W. & F. Manufacturing Co., Buffalo, N. Y. Paraffin, 63.46 per cent; passed.

E.S.-313. Chock Full of Lolly Pops. Arrow Products, Bayside, N. Y. This sample, consisting of a metal sand pail containing lollipops and a metal shovel, was passed.

K.F.-328. Cocomnut Cream Easter Egg. Candy Makers, Inc., Philadelphia, Pa. The individual "eggs" were wrapped but unlabelled.

K.F.-442. Gibson Penny Sugar Stick. Gibson Candy Co., Bristol, Va. Individual candies were wrapped but unlabelled.

S.O.-43. Gum Drops. Bertha Miller Candies, Inc., Greenwich, Conn. Sample was misbranded because of an improper ingredient declaration.

K.F.-443. Halloween Pumpkins. Overland Candy Co., Division of Leaf Brands, Inc., Chicago, Ill. Wrappings were not labelled.

A.F.-369. I'm Perky Bunny Chewing Gum. Glenn Confections, Inc., Buffalo, N. Y. Paraffin, 63.76, and sucrose, 36.06 per cent. Passed.

E.S.-312. Indian Chewing Gum. Goudey Gum Co., Boston, Mass. Slack filled.

K.F.-440. Leader Brand Licorice Lozenges. Leader Novelty Candy Co., Inc., Brooklyn, N. Y. Unlabelled.

K.F.-441. Leader Quality Buck Shot. Leader Novelty Candy Co., Inc., Brooklyn, N. Y. No label except the brand name.

E.S.-439. Lewis 1883 Candies. Edgar P. Lewis & Sons, Inc., Malden, Mass. Label statements were illegible.

K.F.-482. Milk Chocolate Santa Claus. Holiday Candy Co., Inc., Brooklyn, N. Y. These candies were short weight 0.09 oz. on the average.

A.F.-631. Nik-L-Nip 5 Penny Nips. W. & F. Manufacturing Co., Inc., Buffalo, N. Y. This sample consisted of three small paraffin bottles, two filled with pink and one with green syrup. It resembled *K.C.-110*, but was not dirty and was passed.

K.N.-138. Novelty Buttercremes. Zion Industries, Inc., Zion, Ill. Artificial color was present and not declared.

K.F.-444. Overland Cello Wrapped Jaw Breakers. Overland Candy Co., Division of Leaf Brands, Inc., Chicago, Ill. Wrappings were not labelled.

K.F.-374. Rocket Kazoo. Glenn Confections, Inc., Buffalo, N. Y. Paraffin, 41.66 per cent; passed.

K.N.-122. Shure Good Brand Raspberry Cakorettes. Sure Foods, Inc., Chicago, Ill. Declared ingredients were "Apricot kernels, sugar, sweet almonds, corn syrup, artificial color and flavor." Sample should have been labelled "Imitation" or "Artificial" raspberry.

K.C.-86 and 87 and E.S.-269. Television Pak Bubble Gum. Gum Products, Inc., Boston, Mass. This preparation bore no net weight declaration.

E.S.-443. Touchdown Candy with the Famous G & G Trading Card. Burton Burrows Co., New York, N. Y. The loose thumbtacks mixed with the candies were dangerous.

A.F.-354. Wisconsin Dairy Butters. Flavor Candy Co., Chicago, Ill. "Dairy butter" was declared as one of the ingredients, but the total fat content was only 0.64 per cent, which is insufficient to justify any claim for the presence of butter.

K.F.-376. Your Father's Mustache. Glenn Confections, Inc., Buffalo, N. Y. Paraffin, 56.71 per cent; passed.

Contaminated or Decomposed Foods

One hundred and eight official and 32 unofficial samples were examined because of suspected insect or rodent contamination or the presence of foreign matter, or because of complaints that the foods had made people ill. Insects, insect webbing, mouse excreta, foreign matter or decomposition were found in 59 samples, including nine samples of raisins, eight of wheat flour, four each of cheese and potatoes, three each of pecans and tomatoes, two each of cake mix, chocolate, "Coca-Cola" and milk; one sample each of blueberries, butter, cherries, citron, cocoa, coil liquid from a freezer, condensed milk, corn meal, "cream" soda, "Freezette" (a preservative), milk powder, mustard, noodle soup, orange and grapefruit juice, "Pepsi Cola," piecrust mix, pudding mix, rye flour, smoked shoulder and turkey.

Seven samples may be of interest because of unusual features of what was found:

J.W.-103. Blueberries. Lead and tin, each 25 parts per million.

J.W.-125. Coca-Cola. Apple skins in bottle.

7017. Coca-Cola. Residue of varnish in bottom of bottle.

5339. High C Brand Water Pack Red Sour Pitted Cherries. Salter Canning Co., North Rose, N. Y. Arsenious oxide 0.4 part per million.

6665. Pepsi-Cola. Cigar wrapper tobacco in bottle.

K.F.-498 and 499. Turkey and liquid from freezer coils. Watertown Frozen Food Locker, Watertown, Conn. The liquid, which was alcohol (50.02 per cent by volume) denatured with "alcohol" and colored with a fluorescent greenish yellow dye probably dichlorofluorescein, had contaminated the frozen turkey because of a break in the coils, and given it a repulsive odor.

Deceptive Packaging

Under the Food, Drug and Cosmetic Act a food is misbranded "if its container is so made, formed or filled as to be misleading" [G.S. 3940 (d)]. The intent of this section of the law is to prevent deception through placing a small amount of food in a large package to give the impression that the quantity of food is larger than it is. The element of deception must be present; a slack-filled package that is transparent so that the quantity of contents is readily visible to the purchaser does not violate the law.

Fifty-four samples were submitted by the Commissioner because of suspicion that they were deceptively packed. Fifty-one of these were in packages containing so much waste space as to be definitely misleading, and three were passed. Deceptively packed samples included 29 cocoanut chips, 16 candies, three dessert mixes and one sample each of dog food, noodles and onion flakes. The cocoanut chips were all "Ko-Kets Coconut Chips," made by Florida Sunland Foods, Inc., Miami, Fla.; the containers were only 57 per cent filled. Candies of which more than one sample were found to be slack filled were the following:

K.F.-473 and E.S.-442. College Pennant Pak with Chewing Gum. Gum Products, Inc., Boston, Mass. Fill of container 46 per cent.

K.F.-484 and E.S.-440. Football Emblem and Candy Kisses. American Nut and Chocolate Co., Boston, Mass. Fill of container 51 per cent.

K.C.-94 and K.N.-131. Pennant and Candy Kisses. American Nut and Chocolate Co., Boston, Mass. Fill of container 50 per cent.

K.C.-111, 115 and 116 and K.F.-485. Prize Surprizo Candy. Courthouse Candy Co., Chicago, Ill. Fill of container 17 per cent.

Eggs

One official sample of broken-out eggs and one unofficial sample of frozen eggs were examined as follows:

J.W.-123. Armtex Egg Yolks and Egg Whites. Labelled to contain egg yolks, egg white, water, dextrose and salt. No artificial color was found.

8503. Frozen Egg White. Analysis showed water, 87.71, and protein, 10.69 per cent, with no added sugar.

Extracts and Flavors

Nine extracts and flavors were submitted by the Commissioner; two were passed and seven were adulterated or misbranded:

K.N.-124. Baker's Indian Root Beer Beverage Base. Baker Extract Co., Springfield, Mass. Labelled "To be used with water, sugar and yeast. Ingredients: Water, vegetable gum, flavoring, caramel color." Sample was passed.

K.F.-389. Dawn O Day Imitation Vanilla Flavor. Dawn Products, Saugerties, N. Y. Because this product was properly labelled as an imitation flavor and bore the following complete ingredient declaration, it was passed: "Contents: Vanillin, ethyl vanillin, coumarin, pure vanilla, propylene glycol alcohol, carmel (sic) color, and water."

K.N.-119. Goodwin Orange Flavor, Fortified. B. H. Goodwin & Son, Bristol, Conn. Labelled "Contains pure oil orange, acacia, propylene glycol, corn sugar syrup, citric acid, pure food color added." Analysis showed only 1.06 per cent of orange oil, which is much less than the 5 per cent required by regulation.¹

K.N.-116. Goodwin's Better Flavors Vanilla Flavor, Fortified. B. H. Goodwin & Son, Bristol, Conn. Labelled "Contains pure vanilla, vanillin, coumarin, glycerin, cane sugar syrup, caramel color." As labelled, this sample was definitely misbranded; on consultation the manufacturer agreed to revise his labels to read "Vanilla, Vanillin and Coumarin Flavor, Artificially Colored."

K.N.-120. Goodwin's Root Beer Extract. B. H. Goodwin & Son, Bristol, Conn. The sample bore no list of ingredients. Because of the presence of flavoring oils and caramel color, it should have been labelled "Artificial Root Beer Extract, Artificially Flavored and Colored."

K.C.-101. Maraschino Flavor. Italy Laboratories, New York, N. Y. Sample was misbranded because it did not bear a complete ingredient declaration and was not prominently labelled "Imitation Maraschino Flavor".

K.C.-118. Universal Brand Rum Flavor. Universal Extract Co., Brooklyn, N. Y. Sample did not bear an ingredient declaration and should have been labelled "Imitation Rum Flavor".

K.C.-119. Universal Rye Flavor. Colombo Extract Co., Brooklyn, N. Y. There was no ingredient declaration and sample should have been labelled "Imitation".

K.N.-123. Williams Root Beer Extract. Williams & Carleton Division, Delano, Potter & Co., Inc., Boston, Mass. Because the ingredient declaration listed not only extracts of wintergreen, hops, pipsissewa and sassa-parilla but also artificial oils of wintergreen and sassafras, it should have been labelled "Pure and Artificial Root Beer Extract".

Fats and Oils

Butter and Oleomargarine

Three samples of butter and one of oleomargarine were examined for the Commissioner. All of the butter samples were passed:

K.C.-81 and 82. Breakstone's Butter. Breakstone Bros., Inc., New York, N. Y. Constants of the fat were as follows: Butyro refraction, 40°C., 42.0; Riechert-Meissl value, 29.1; Polenske value, 3.5.

J.W.-86. Cudahy's Sunlight Creamery Butter. Cudahy Packing Co., Chicago, Ill. Constants of the fat: Butyro refraction, 40°C., 42.8; Reichert-Meissl value, 27.2; Polenske value, 3.5.

The oleomargarine, "Hygrade's Oleomargarine," sampled at the Spaghetti Palace, Pawcatuck, Conn., was colored with coal tar dye. This is in violation of Sec. 3887 of the General Statutes which requires that oleomargarine be "free from coloration".

¹ Rules and Regulations Relating to the Food and Drug Law of Connecticut, Revision of July 1, 1937, p. 98.

Nut Butters

One official sample each of peanut butter and pecan nut butter was examined:

A.F.-607. Penn's Manor Pecan Nut Butter. Penn's Manor Canning Co., Bristol, Pa. Declared ingredients were "ground pecans, creamery butter, oleo stock, salt and spices." Constants of the fat were as follows: Butyro refraction, 40°C., 63.2; Reichert-Meissl value, 2.6; Polenske value, 1.0. Because the Reichert-Meissl value could indicate as much as 11 per cent of butter, the sample was passed.

K.F.-342. Purity Peanut Butter. J. T. Ralston, New Haven, Conn. Labelled "Contains U. S. No. 1 Government peanuts, salt and sweetening"; this is an insufficient ingredient declaration, because the sweetening agent should be named.

Olive Oil

Twenty-three official and three unofficial samples of oils claimed to be olive oil were examined. Nineteen of these were passed and seven were adulterated or misbranded. Analyses are given in Table 3.

Other Oils and Fats

Six official and six unofficial samples claimed to be unblended oils were examined: five peanut oils, four cocoanut oils, two linseed oils and one corn oil. Seven of these were passed and five were adulterated or misbranded:

S.G.-517. Cocoanut Oil. Sunny Valley, Meriden, Conn. Butyro refraction, 40°C., 37.2; iodine no., 10; saponification no. 261; Reichert-Meissl value, 5.4; Polenske value, 15.6. Sample was passed.

7184 and 7186. Cocoanut Oil. R. A. Warner, Hamden, Conn. Artificially colored cocoanut oil.

7185. Cocoanut Oil. R. A. Warner, Hamden, Conn. Rancid (free acidity as oleic acid 5.50 per cent) but not artificially colored.

9318. Durkee's Choice Refined Peanut Oil. Durkee Famous Foods, New York, N. Y. Butyro refraction, 25°C., 64.9; sample was passed.

6030. Linseed Oil—Dark. John Bogaert, East Haven, Conn. Index of refraction, 25°C., 1.4786; specific gravity, 15.5°C., 0.9282; iodine no., 173; saponification no., 185; unsulfonatable, none. Sample was passed.

6029. Linseed Oil—Light. John Bogaert, East Haven, Conn. Index of refraction, 25°C., 1.4785; specific gravity, 15.5°C., 0.9278; iodine no., 173; saponification no., 183; unsulfonatable, none. Sample was passed.

E.S.-435. Peanut Oil. Gemco Oil Co., New Haven, Conn. Sample contained a little cottonseed oil but was nearly pure peanut oil; however, it had become contaminated with a bay rum odor that made it inedible.

A.F.-390. Peanut Oil. R. & S. Olive Oil Co., Inc., Torrington, Conn. Butyro refraction, 25°C., 63.5; squalene, 15 mgm./100 gm. Sample was passed.

TABLE 3. OLIVE OIL

No.	Manufacturer or distributor and brand	Remarks
E.S.-369	Bellevue Olive Oil Co., New York, N. Y. <i>Bellerue</i>	Short volume 5.2 fl. oz.
E.S.-418	Cimino Bros., New Haven, Conn. <i>Amalfi</i>	Pass.
E.S.-360	I. Haber, New York, N. Y. <i>Napoli</i>	Pass.
S.O.-23	Jerel Co., Stamford, Conn. <i>Jerel</i>	Pass.
E.S.-305	Krasdale Foods, Inc., New York, N. Y. <i>Krasdale Fine Foods</i>	Pass.
E.S.-261	L & S Packing Co., Inc., New York, N. Y. <i>Table Joy</i>	Pass.
E.S.-420	Lucatelli Packing Co., New York, N. Y. <i>Lucatelli</i>	Pass.
6285	Manufacturer unknown. <i>Torino</i>	Pass.
A.F.-385	Manufacturer unknown	Pass.
A.F.-388	Manufacturer unknown	Squalene 364 mgm./100 gm. Pass.
K.F.-345	Manufacturer unknown	Pass.
E.S.-315	Manufacturer unknown	Pass.
8514	Manufacturer unknown	Pass.
8972	Manufacturer unknown	Butyro refraction, 25°C., 69.8; squalene 25 mgm./100 gm. Adulterated; artificially flavored corn oil.
A.F.-651	Marca D'Oro Product Co., New York, N. Y. <i>Marca D'Oro</i>	Short volume 3.2 fl. oz.
A.F.-343	Marino-Viana Oil Dist. Corp., New York, N. Y. <i>Il Vero</i>	Adulterated with cottonseed oil; short volume 5.1 fl. oz.
K.F.-466	C. Pappas Co., Inc., Boston, Mass. <i>Pappas</i>	Short volume 1.6 fl. oz.
E.S.-275	Pepe-Maisano Co., New Haven, Conn. <i>Maisano</i>	Squalene 362 mgm./100 gm. Pass.
E.S.-307	Red Line Commercial Co., Inc., New York, N. Y. <i>Successo</i>	Pass.
K.F.-293	Gus Sclafani, Stamford, Conn. <i>Sclafani</i>	Pass.
K.F.-351	Gus Sclafani, Stamford, Conn. <i>Sclafani</i>	Squalene 334 mgm./100 gm. Sample was rancid.
K.N.-109	Sclafani Importing Co., Inc., Brooklyn, N. Y. <i>Sclafani</i>	Squalene 451 mgm./100 gm. Pass.
J.C.-31	Serto Packing Co., New York, N. Y. <i>Serto</i>	Pass.
J.C.-32	Serto Packing Co., New York, N. Y. <i>Serto</i>	Pass.
K.F.-182	Uddo & Taormina Co., Brooklyn, N. Y. <i>Progresso</i>	Short volume 1.6 fl. oz.
E.S.-255	Venice Importing Co., Brooklyn, N. Y. <i>Abbondanza</i>	Pass.

K.F.-383. Peanut Oil. Romano's, Ansonia, Conn. Trace of cottonseed oil present. Sample was passed.

E.S.-274. Planters Hi-Hat Peanut Oil. Planters Edible Oil Co., Suffolk, Va. Butyro refraction, 25°C., 64.1; squalene, 48 mgm./100 gm. Sample was passed.

K.F.-379. Universal Brand Extra Fine Oil. Antonio Corrao Corp., Brooklyn, N. Y. Labelled "The contents of this can is guaranteed to be 100% pure corn oil." Sample was adulterated with cottonseed oil and short volume 2.2 fl. oz.

Thirty-seven samples of blended oils were submitted by the Commissioner and three by private individuals. Fourteen of these were passed and 26 were adulterated or misbranded. These samples (except one) are listed in Table 4. One sample, 6626, was a 50 per cent blend of olive and peanut oils prepared for experimental purposes. The Renard test¹ showed 46 per cent of peanut oil and the squalene value of 214 mgm./100 gm. corresponded to 62 per cent of olive oil on the basis of average squalene values for olive and peanut oils.

Until recent years no specific test for olive oil existed, and consequently it was not possible to prove or disprove claims for the presence of small percentages of olive oil in mixtures with other oils. Then in 1943² Dr. J. Fitelson of the New York Station of the U. S. Food and Drug Administration discovered that olive oil contained proportionately much more of the unsaturated hydrocarbon squalene than did any other vegetable oil; the average amount of squalene in 100 grams of olive oil being 330 milligrams, as against only 3 to 28 milligrams in equal quantities of other oils. On the basis of squalene determinations, the Food and Drug Administration was able to prove that many brands of oils on the market were labelled with fraudulent claims for the presence of olive oil. As a result of the prosecutions that were instituted, this form of adulteration largely disappeared. Then inspectors began to hear rumors in the trade that squalene as such was being added to oils to simulate the presence of olive oil. For some time the Federal authorities were not able to confirm these rumors. Pure squalene was not on the market. It was known, however, that the liver oils of certain fishes, particularly sharks, contained large quantities of squalene. Investigation finally revealed that a subsidiary of the Eastman Kodak Co., Distillation Products Industries, had been accumulating pure squalene as a byproduct in the recovery of vitamin A from fish liver oils by molecular distillation, and that an unethical Brooklyn pharmacist had been purchasing this squalene and selling it to producers of table oils so that they could simulate the addition of olive oil to their products. Distillation Products Industries were unaware of the use to which their squalene was being put, and when the Federal authorities informed them of the facts, they readily agreed to allow a marking chemical to be added to a drum of squalene that they were about to ship, and thereafter to refuse to sell any more squalene.

¹ *Official Methods of Analysis of the Association of Official Agricultural Chemists*, 7th Ed. (1950), 26.41.

² *Jour. Assoc. Official Agr. Chem.*, **26**, 499 (1943).

TABLE 4. BLENDED OILS

No.	Manufacturer or distributor, brand and declared composition	Remarks
A.F.-392	Barletta & Co., Orange, N. J. <i>Belsole Oil</i> , 80% <i>Peanut Oil</i> 20% <i>Olive Oil</i>	Short volume 3.5 fl. oz.
A.F.-393	Barletta & Co., Orange, N. J. <i>Belsole Oil</i> , 80% <i>Peanut Oil</i> 20% <i>Olive Oil</i>	Short volume 3.6 fl. oz.
A.F.-394	Barletta & Co., Orange, N. J. <i>Belsole Oil</i> , 80% <i>Peanut Oil</i> 20% <i>Olive Oil</i>	Short volume 3.7 fl. oz.
A.F.-609	C. Calvo & Sons, Hartford, Conn. <i>Four Brothers Brand Oil</i> , 95% <i>Corn, Peanut & Cottonseed Oils</i> , 5% <i>Olive Oil</i>	Pass.
K.C.-104	Castelcarini Packing Co., Brooklyn, N. Y. <i>Belmonte Oil</i> , 80% <i>Peanut Oil</i> 20% <i>Olive Oil</i>	Pass.
E.S.-215	Castelcarini Packing Co., Brooklyn, N. Y. <i>Belmonte Oil</i> , 80% <i>Peanut Oil</i> 20% <i>Olive Oil</i>	Foreign material present giving repulsive odor ; short volume 2.6 fl. oz.
E.S.-227	Castelcarini Packing Co., Brooklyn, N. Y. <i>Belmonte Oil</i> , 80% <i>Peanut Oil</i> 20% <i>Olive Oil</i>	Cottonseed oil present not declared.
K.F.-296	Chicago Macaroni Co., Brooklyn, N. Y. <i>San Leo Oil</i> , 95% <i>Peanut and Corn 5% Olive Oil</i>	Short volume 2.5 fl. oz.
J.W.-128	I. A. Gallo, Hartford, Conn. <i>Flora Oil</i> , 80% <i>Peanut Oil</i> 20% <i>Olive Oil</i>	Cottonseed oil present not declared ; short volume 4.0 fl. oz.
H.C.-5	I. A. Gallo, Hartford, Conn. <i>Gallo's</i>	Short volume 4.7 fl. oz.
E.C.-191	Gem Packing Corp., Brooklyn, N. Y. <i>Gemma</i> , 90% <i>Corn and Peanut 10% Olive Oil</i>	Short volume 5.9 fl. oz.
K.F.-297	Gem Packing Corp., Brooklyn, N. Y. <i>Gemma</i> , 90% <i>Corn and Peanut 10% Olive Oil</i>	Short volume 4.7 fl. oz.
K.F.-298	Gem Packing Corp., Brooklyn, N. Y. <i>Gemma</i> , 90% <i>Corn and Peanut 10% Olive Oil</i>	Short volume 5.1 fl. oz.
W.M.-21	Joe's Market, Colchester, Conn. <i>Corn Oil and 10% Olive Oil</i>	Artificial flavor and color present not declared ; probably not over 7% olive oil.
E.S.-217	Lucatelli Packing Co., West New York, N. J. <i>Lucatelli</i> , 75% <i>Peanut and Corn Oil 25% Olive Oil</i>	Short volume 1.3 fl. oz., but pass.
K.F.-333	Mancini Products Co. of New York, Staten Island, N. Y. <i>Mancini DeLuxe 50% Olive Oil 50% Peanut Oil</i>	Olive oil content only 15% ; short volume 3.3 fl. oz.
E.S.-262	Mancini Products Co. of New York, Staten Island, N. Y. <i>Mancini DeLuxe 50% Olive Oil 50% Peanut Oil</i>	Olive oil content only 13% ; short volume 0.8 fl. oz.
6328	Manufacturer unknown. <i>50% Olive Oil</i>	About 60% peanut oil.
9317	Manufacturer unknown. <i>Oil</i>	Peanut oil with a little cottonseed oil.
A.F.-342	J. Ossola Co., New York, N. Y. <i>Prosperity</i> , 78% <i>Corn and Peanut 22% Olive Oil</i>	Short volume 3.1 fl. oz.

TABLE 4. BLENDED OILS (Concluded)

No.	Manufacturer or distributor, brand and declared composition	Remarks
E.S.-436	Paladino Oil Co., Brooklyn, N. Y. <i>Di Carlo, 75% Peanut 25% Olive Oil</i>	Probably only 15% olive oil, but pass.
K.F.-464	C. Pappas Co., Inc., Boston, Mass. <i>Santa Lucia</i>	Probably corn oil; short volume 2.2 fl. oz.
K.F.-465	C. Pappas Co., Inc., Boston, Mass. <i>Santa Lucia</i>	Probably corn oil; short volume 3.3 fl. oz.
K.F.-467	C. Pappas Co., Inc., Boston, Mass. <i>Santa Lucia</i>	Probably corn oil; short volume 3.7 fl. oz.
K.N.-106	Patria Import Co., Brooklyn, N. Y. <i>Viva, 80% Peanut Oil 20% Olive Oil</i>	Statement "Enriched—It's full of goodness" is misleading.
A.F.-389	R. & S. Olive Oil Co., Inc., Torrington, Conn. <i>Citta Nuova, 20% Olive Oil 80% Peanut Oil</i>	Pass.
E.S.-311	R. & S. Olive Oil Co., Inc., Torrington, Conn. <i>Citta Nuova, 20% Olive Oil 80% Peanut Oil</i>	Pass.
K.F.-301	Santuzza Oil Co., Inc., Brooklyn, N. Y. <i>Santuzza, 95% Corn or Peanut 5% Olive Oil</i>	Pass.
K.F.-352	Saporo Food Products, Brooklyn, N. Y. <i>Saporo, 85% Peanut 15% Olive Oil</i>	Cottonseed oil present not declared; probably only 6% olive oil.
E.S.-272	Saporo Food Products, Brooklyn, N. Y. <i>Saporo, 85% Peanut 15% Olive Oil</i>	Pass.
K.F.-183	Societa Italiana Commerciale, Brooklyn, N. Y. <i>Pace O Mio Dio, 80% Peanut 20% Olive Oil</i>	Olive oil content probably 17%; pass.
K.F.-353	Societa Italiana Commerciale, Brooklyn, N. Y. <i>Pace O Mio Dio, 80% Peanut 20% Olive Oil</i>	Olive oil content probably 10%; pass.
K.F.-354	Societa Italiana Commerciale, Brooklyn, N. Y. <i>Pace O Mio Dio, 80% Peanut 20% Olive Oil</i>	Cottonseed oil present not declared; olive oil content probably 14%.
J.W.-131	Universal Importing Co., Hartford, Conn. <i>25% Olive Oil</i>	Olive oil content probably about 60% with 40% peanut oil; pass.
K.F.-350	Universal Salad Oil Co., Brooklyn, N. Y. <i>Figlia Mia, 90% Corn and Peanut 10% Olive Oil</i>	Cottonseed oil present not declared; olive oil content probably 7%.
A.F.-344	Viana Oil Co., Brooklyn, N. Y. <i>Viana, 80% Peanut 20% Olive Oil</i>	Artificially colored and 4.9 fl. oz. short volume.
A.F.-395	Viana Oil Co., Brooklyn, N. Y. <i>Viana, 80% Peanut 20% Olive Oil</i>	Short volume 1.7 fl. oz.; probably only 13% olive oil.
A.F.-399	Viana Oil Co., Brooklyn, N. Y. <i>Viana, 80% Peanut 20% Olive Oil</i>	Pass.
E.S.-271	Vita Edible Oil Co., Brooklyn, N. Y. <i>Vita Bella, 80% Peanut 20% Olive Oil</i>	Short volume 2.4 fl. oz.

The marking chemical added was anthranilic acid (o-aminobenzoic acid). After the marked squalene had been shipped, Federal inspectors began taking samples of oils packed by producers who were suspected of using squalene, and Federal chemists tested these oils for anthranilic acid. For months no anthranilic acid showed up, and then, just as the Food and Drug Administration officials were becoming uneasy as to whether it ever would be found where they expected it to be, they began to get positive tests.

All of the investigation up to this point had been carried on in the strictest secrecy, and the facts were unknown to the chemists of this Station or to the Connecticut Food and Drug Commission. Then during an action in the New Haven Federal Court against an Antonio Corrao of Brooklyn, N. Y., on March 29-31, 1949, the whole story came out in court testimony. Once the need for secrecy ceased to exist Dr. Fitelson immediately turned over to the head of this department the text of the method used by the Food and Drug Administration for testing for anthranilic acid, together with a sample of pure squalene. While it is highly doubtful that there will ever again be need for a test for anthranilic acid in vegetable oils, the method is reproduced here as a matter of record:

TEST FOR ANTHRANILIC ACID IN OILS

Divide 400 gm. of the oil equally between five 500 ml. separatory funnels. Add 180 ml. of gasoline (lead-free) to each funnel. Pass three 100 ml. portions of hydrochloric acid (1 + 99) successively through each funnel, shaking vigorously each time and allowing the layers to separate. Filter the aqueous layers from the fifth funnel through paper, and finally wash the paper once with water. Neutralize the combined extracts and washing to litmus with sodium hydroxide solution (1 + 1) and add 4 drops of the solution in excess. Evaporate to about 40 ml., cool, neutralize with hydrochloric acid, and add 5 ml. more of hydrochloric acid. Transfer to a 200 ml. Erlenmeyer flask, dilute if necessary to about 55 ml., add one drop of 1% copper sulfate solution, cool to 5°C., add 0.5 ml. of sodium nitrite solution (1.5 gm./100 ml.) and let stand in a refrigerator for 30 minutes. Then add 5 ml. of saturated hydrazine sulfate solution and mix.

Prepare in a 500 ml. flask a coupling solution by mixing 25 ml. of water with 2 ml. of a 1% sodium 1-naphthol-2 sulfonate solution and 50 ml. of 2 *N* sodium carbonate and cooling to 15°C. Add the cold hydrazine sulfate-treated solution of the sample to this coupling solution in small portions. (The final mixture should be alkaline.) If the oil contains anthranilic acid, a pink or red color will develop; a colorless or yellow solution indicates no anthranilic acid.

The colored compound is relatively unstable in solution, but can be preserved as follows:

Extract the colored alkaline solution with 50 ml. of amyl alcohol and save the aqueous layer. Wash the amyl alcohol with several portions of 10% sodium chloride solution to remove the red color. Combine these washings with the original aqueous layer, filter into a separatory funnel, barely acidify with acetic acid, and extract with three 50 ml. portions of amyl alcohol. Combine the amyl alcohol extracts in a small casserole and evaporate gently on a steam bath to dryness. The red solid residue will last indefinitely.

Mr. Wickroski of this Station prepared a 0.1 per cent solution of anthranilic acid in an unadulterated oil and proved that the test was sufficiently sensitive to detect much less than this concentration of the marking compound. He then applied the test to six market samples of oils that had been packed by companies suspected of adding squalene to their oils. No anthranilic acid was found in any of the samples but because all

these samples were from lots of oils believed to have been produced after the packers had discontinued using squalene, our failure to find anthranilic acid was not unexpected. The samples, whose analysis otherwise is reported in Table 4, were the following:

K.F.-350. Figlia Mia Oil. Universal Salad Oil Co., Brooklyn, N. Y.

K.F.-353 and 354. Pace O Mio Dio 80% Peanut Oil 20% Pure Olive Oil. Societa Italiana Commerciale, Brooklyn, N. Y.

K.F.-352 and E.S.-272. Sapore Brand Fine Quality Oil. Sapore Food Products, Brooklyn, N. Y.

E.S.-271. Vita Bella Brand 80% Selected Peanut—20% Pure Olive Oil. Vita Edible Oil Co., Brooklyn, N. Y.

Fish and Shellfish

Thirty-four samples of canned fish and shellfish were submitted by the Commissioner, including 16 samples of so-called "rock lobster" (a species of crawfish), ten of scallops, five of herring, two of tuna and one of sardines. Twenty-one of these were passed and 13 were adulterated or misbranded:

K.F.-329, 330, 331 and 332. Bjugn Brand Kippered Herrings, Fancy Quality. Bjugn Fabriker, Ltd., Trondhjem, Norway. The lead content of these herrings was less than one part per million, but the tin content ranged from 50 to 250 parts per million; this highest quantity, found in one sample, is sufficient to constitute adulteration.

E.C.-298, 301 and 306; K.C.-113; K.F.-415, 416 and 417; S.O.-4, 5 and 36. Blue Band Brand Atlantic Coast Scallops, Water and Salt Added. Cannors Sales Agency, Los Angeles, Calif. These samples averaged 0.9 oz. short weight.

A.F.-391. California Herring in Tomato Sauce. Fortune Fisheries, San Francisco, Calif. The roe in this fish was very hard, but sample was passed.

E.C.-307 and E.S.-334. Deep Blue Brand Rock Lobster. Catz American Co., Inc., New York, N. Y. Samples were passed; one contained "struvite" crystals.

W.M.-43. Dubonnet Rock Lobster. Calburg Corp., New York, N. Y. Sample was passed.

K.N.-133. Eastco Brand Sardines in Vegetable Oil, Salt Added. Eastland Food Products Co., New Bedford, Mass. Sample was misbranded because the name of the packing oil was not specified.

K.F.-406. El Avio Brand Rock Lobster. Arce y Cia., Havana, Cuba. Sample was passed.

E.S.-276. Hunt's Fancy White Meat Tuna, Solid Pack Albacore. Hunt's Foods, Inc., San Francisco, Calif. This sample was submitted by the Commissioner to determine whether it was solid pack fancy quality alba-

core as labelled. Because our chemists were not sufficiently specialized in the examination of fish to answer these questions, the sample was forwarded to Dr. Glenn G. Slocum, Chief of the Division of Microbiology of the U. S. Food and Drug Administration at Washington. He replied that the fish was albacore but was only 60 per cent solid meat with the balance flakes, and therefore did not meet the following trade practice rules of the Federal Trade Commission for "fancy" tuna:

"(1). The term 'Fancy Tuna' as herein used shall be deemed to be the descriptive term for choice cuts of cooked tuna, from fish weighing not more than sixty (60) pounds round weight, packed in cans with large pieces of solid meat and with one or two small pieces of solid meat added, if necessary, to bring the contents up to required net weight, but not including any flakes (nor any grated or shredded tuna) added at the time of packing.

"(2). The term 'Fancy White Meat Tuna' as herein used shall be deemed to be the descriptive term for like choice cuts of albacore (*Germo alalunga*) packed in the same manner."

K.N.-221. Tonno Tuna Fish Packed in Olive Oil. West Coast Packing Corp., Long Beach, Calif. Analysis of the 10.38 per cent of packing oil showed it to have a butyro refraction of 62.3 at 25°C. and to contain 313 mgm./100 gm. of squalene, values which are consistent with the oil being olive oil as labelled.

E.C.-303, 304 and 305; K.F.-404, 405 and 407; W.M.-41 and 44; K.N.-189 and 190; S.O.-30; E.S.-336. Your Lucky Star Brand Rock Lobster, Packed in Brine. Peabody American, Inc., New York, N. Y. Some of these samples contained "struvite" (magnesium ammonium phosphate) crystals, which frequently develop naturally in canned shellfish. They are sometimes mistaken for glass, and were responsible for a war scare when they were found in Japanese crabmeat in 1941,¹ but are harmless.

Flour

One sample of spring wheat flour, 8033, was analyzed for a private individual as follows: Moisture, 11.10; protein, 12.83; fat, 1.11; fiber, 0.13; ash, 0.50, and starch and other carbohydrates by difference, 74.33 per cent.

Fruit, Canned

Nine samples of canned fruit were examined for the Commissioner:

K.F.-402. A & P Applesauce, Grade A. Great Atlantic and Pacific Tea Co., New York, N. Y. The can was opened when this sample was received, and no doubt the mold growth on the top had developed subsequent to opening. No other foreign ingredient was found.

E.S.-365. Belmont Brand Chopped Yellow Cling Peaches and Chopped Bartlett Pears in Light Syrup. Santa Cruz Fruit Packing Co., Oakland,

¹ *Conn. Agr. Expt. Sta. Bul.* 460, 429 (1942).

Calif. Analysis of the syrup showed sucrose, 2.24, and invert sugar, 11.86 per cent. The Brix gravity was 15.8, which meets the Federal standard of 14-18° Brix for light syrup in pears.

E.S.-306. Bestwest Select Fancy Purple Plums in Extra Heavy Syrup. Washington Cannery Co-operative, Vancouver, Wash. Analysis showed sucrose, 4.22, and invert sugar, 18.09 per cent. The Brix gravity was 30.0. Sample was passed.

K.F.-384. Coffee Cake Fruit Mix. Efron Bakery Supply, Waterbury, Conn. This was a vacuum packed mixture of artificially colored candied fruits and coarse sugar that was misbranded because it bore no label at all.

E.S.-388. Hunt's Yellow Cling Peaches in Heavy Syrup. Hunt's Foods, Inc., San Francisco, Calif. Analysis showed sucrose, 4.60, and invert sugar, 14.72 per cent. The Brix gravity was 22.8, which falls within the Federal limits of 19-24° Brix for heavy syrup in peaches.

E.C.-203. Ken-More Brand Sliced Elberta Yellow Freestone Peaches. Kennedy & Co., Inc., S. K. Ames, Inc., Boston, Mass. Analysis showed sucrose, 5.02, and invert sugar, 17.19 per cent. The Brix gravity was 25.2, which is within the Federal limits of 24-35° Brix for extra heavy syrup in peaches.

E.S.-210. Perrelli Brand Bartlett Pears in Heavy Syrup. Perelli Bros., New Haven, Conn. Analysis showed sucrose, 4.91, and invert sugar, 9.11 per cent. The Brix gravity was 18.7, which met the Federal standard of 18-22° Brix for heavy syrup in pears.

E.C.-204. Thames Valley Blueberries Packed in 40% Sugar Syrup. Universal Food Stores, Inc., Norwich, Conn. Analysis showed sucrose, 0.08; invert sugar, 20.77, and total sugars, 20.85 per cent, with a Brix gravity of 22.3. Sample was adulterated because the sugar content of the syrup was much less than 40 per cent.

J.W.-115. Whole Purple Plums Packed in Heavy Syrup. Farm Bureau Fruit Products Co., Lansing, Mich. Analysis showed sucrose, none, and invert sugar, 16.08 per cent. The Brix gravity was 19.4. Sample was passed.

The pH (3.38) of a sample of frozen strawberries, 6405, was determined for a purchaser.

Fruit Juices

Four samples of grape juice, three of cider (or apple juice), two each of lemon and prune juice and one of orange juice were submitted by the Commissioner, and five samples of cider or apple juice were examined for a manufacturer, private individuals and a city police department. Twelve of these were passed and five were adulterated or misbranded:

6281 *A and B. Apple Juice.* No preservative was found.

K.N.-145. Berry Hill Apple Juice. Berry Hill Orchard Co., Livermore Falls, Maine. Labelled "Vitamin C added—4 oz. contain 30 mg., the minimum daily adult requirement for vitamin C." Analysis showed only 1.1 mgm. of ascorbic acid (vitamin C) in 4 fl. oz., so sample was misbranded.

E.S.-399. Cider. Analysis was as follows: Specific gravity, 20°C., 1.0525; ash, 0.31 gm./100 cc.; potassium carbonate in ash, 72.6 per cent; alcohol, 0.60 per cent by volume. Sample was passed.

9386. Cider. This sample was examined only to show that it would remain clear when filtered.

E.C.-261 and E.S.-444. Fruitcrest Prune Juice. Fruitcrest Corp., Brooklyn, N. Y. Labelled "An aqueous infusion of dried prunes." Analysis showed total solids, 19.90, and ash, 0.58 per cent. The samples were passed.

K.F.-461 and 472 and S.O.-62 and 63. Fruitcrest Pure Concord Grape Juice, Sweetened. Fruitcrest Corp., Brooklyn, N. Y. On the basis of analyses the average percentage of grape juice in these samples was calculated to be only 63, so all samples were adulterated.

E.C.-206. Old South Reconstituted Orange Juice, Sugar Added. Pasco Packing Co., Dade City, Fla. Analysis showed ash, 0.45 per cent, and ascorbic acid, 0.17 mgm./cc. This vitamin content is low for orange juice because fresh orange juice contains about 0.48 mgm./cc.,¹ but sample was passed.

S.O.-11 and K.N.-199. Realemon Brand 100% Real California Lemon Juice. Puritan Co. of America, Chicago, Ill. The ascorbic acid content was only 0.10 mgm./cc., while fresh lemon juice contains 0.48 mgm./cc. of this vitamin,² but samples were passed.

¹ *J.W.-129. Sweet Cider.* West Hartford Health Dept. No evidence of adulteration was found.

5954. Tenedine's Apple Cider. V. Tenedine & Sons, Inc., North Haven, Conn. Alcohol, 1.35 per cent by volume.

6149. Tenedine's Apple Juice, Vitamin C Added. V. Tenedine & Sons, Inc., North Haven, Conn. This sample contained 14.6 milligrams of ascorbic acid (vitamin C) in 10 ounces.

Jams and Jellies

Three samples of preserves were examined for the Commissioner; all were passed:

E.S.-291. Comtesse Brand Peach Preserve. Lissco Trading Corp., New York, N. Y. Analysis indicated 42 parts of fruit to each 55 parts of sugar and a soluble solids content of 66.12 per cent; these figures were close enough to the standard for the sample to be passed.

E.S.-289. Comtesse Brand Pure Apricot Preserve. Lissco Trading Corp., New York, N. Y. Analysis indicated 49 parts of fruit to each 55 parts of sugar, with a soluble solids content of 66.44 per cent. This meets

¹ *Conn. Agr. Expt. Sta. Bul.* **415**, 684 (1938).

² *Conn. Agr. Expt. Sta. Bul.* **401**, 365 (1937).

the Federal standards, which require that the soluble solids be not less than 65 per cent and that there be at least 45 parts of fruit to each 55 parts of sugar.

E.S.-290. Comtesse Brand Strawberry Preserve. Lissco Trading Corp., New York, N. Y. Analysis indicated 46 parts of fruit to 55 parts of sugar and a soluble solids content of 68.52 per cent. These figures met the Federal standards, including the requirement that strawberry preserves contain 68 per cent of soluble solids.

Meat and Meat Products

Two samples of hamburg and one each of frankforts, a piece of meat and a pork spare rib were submitted by the Commissioner, and one sample of frankforts was examined for the State Supervisor of Purchases. Four of these were passed and two were adulterated:

J.C.-34. Beef Hamburg. Meltzers Market, New Britain, Conn. No preservative was found.

J.W.-109. Frankforts. State Supervisor of Purchases, Hartford, Conn. Analysis showed water, 39.25; protein, 17.88, and lactose, 3.76 per cent, with no starch. The lactose content indicated 7.30 per cent of dry skim milk, which is more than twice the permitted 3.5 per cent.

5940. Frankforts. Hartford Provision Co., Hartford, Conn. Analysis showed water, 59.02; protein, 11.19, and lactose, 2.09 per cent, indicating 4.06 per cent of dry skim milk and 14 per cent of added water. This represents violation of regulations of the Bureau of Animal Industry of the U. S. Dept. of Agriculture on two counts, because these regulations require not more than 3.5 per cent of dry skim milk and not more than 10 per cent of added water.

K.N.-219. Hamburg. L & L Market, New Britain, Conn. Sample was putrid.

E.S.-209. Meat. Arthur Le Montagne, East Hartford, Conn. No foreign ingredient was found.

K.C.-89. Pork Spare Rib. Bridgeport Co-operative Consumers, Inc., Bridgeport, Conn. No preservative was found.

Milk and Milk Products

Condensed Milk

One sample of sweetened condensed milk, 6121, was analyzed for the Brock-Hall Dairy Co., Hamden, as follows: Total solids, 56.75; fat, 2.26; sucrose, 29.84, and lactose, 1.09 per cent.

Cream

K.F.-299. Avoset Whipping Sterilized Cream, 18% Butterfat. Avoset Co., San Francisco, Calif. This sample of canned cream was labelled "Contains 99.8% real cream by wt., vegetable stabilizer (Algin), salt." Analysis showed total solids, 25.62; fat, 20.0; casein, 2.55, and salt, 0.10 per cent.

K.F.-300. Avoset Whipping Sterilized Cream, 30% Butterfat. Avoset Co., San Francisco, Calif. Analysis showed total solids, 36.30; fat, 31.5; casein, 2.31, and salt, 0.10 per cent.

Because Dr. William F. Reindollar, Chief of the Bureau of Chemistry of the Maryland State Department of Health, had reported to the department head that samples of "Avoset" canned cream examined in the Maryland Department of Health laboratory gave positive phosphatase tests that would normally indicate underpasteurization and yet proved to be sterile on bacteriological examination, and that these creams after resterilization in the laboratory yielded negative phosphatase tests, samples of "Avoset" were submitted to the Bureau of Laboratories of the Connecticut State Department of Health. Dr. Friend Lee Mickle of the Bureau of Laboratories essentially confirmed Dr. Reindollar's observations in that bacteriological methods indicated pasteurization while two different phosphatase tests did not, and in that after laboratory pasteurization the phosphatase test was negative.

Unfortified Milk

Forty-three samples of milk were examined for dairymen, mostly for the determination of butter fat. Four samples were analyzed for the Department of Farms and Markets:

6136 and 6137. Rockhouse Dairy, Redding, Conn. Average analysis showed specific gravity, 1.0323; total solids, 12.40; fat, 3.6, and solids not fat, 8.80 per cent.

W.G.-7136 and 7137. Herd of G. Bilger, Meriden, Conn. Average analysis showed specific gravity, 1.0313; total solids, 11.92; fat, 3.4, and solids not fat, 8.52 per cent.

Vitamin D Milk

Vitamin D milk is standardized to contain 400 U.S.P. units of vitamin D per quart. Since 1935 this laboratory has checked the vitamin D content of all brands of vitamin D milk on the market by feeding tests on rats. Samples were submitted by the Dairy and Food Commission until July 1, 1947; since then they have been supplied by the Department of Farms and Markets.

In 1949, 157 samples were examined; results of the assays are shown in Table 5. Eleven samples were definitely below the unitage claimed. The percentage of samples fully or substantially meeting guaranties was 93.

In the 15-year period, 1935-1949 inclusive, 1,500 samples have been tested; 85 per cent contained the unitage claimed for them or were sufficiently close to the guaranties to be passed.

Pickles

Two samples of pickles and one of "sweet relish" were submitted by the Commissioner; both pickles were misbranded and the "sweet relish" was passed:

TABLE 5. SUMMARY OF ASSAYS OF VITAMIN D MILK

City or town	Dairy	No. of samples tested	Satis- factory	Passed	Below unitage claimed
Berlin	Johnson's Dairy	2	1	1	....
	Ventres Dairy	2	1	1	....
Bloomfield	Peter Boysen & Son	2	2	....	....
	H. E. Holcomb	2	2	....	....
	Chris Neilsen & Sons	2	2	....	....
	A. J. Wade	1	....	1	....
Bridgeport	Beechmont Dairy	1	1	....	....
	Borden's, Mitchell Division	1	1	....	....
	Clover Farm, Inc.	1	1	....	....
	Dewhirst Dairy	1	1	....	....
	Marsh Dairy	1	1	....	....
	Supreme Dairy	1	1	....	....
Bristol	E. H. Elton	2	2	....	....
	Roberge Dairy	2	2	....	....
Clinton	Burr Dairy	2	2	....	....
Danbury	Marcus Dairy	1	....	1	....
	Rider Dairy	1	1	....	....
East Haddam	Sprecher Dairy	1	1	....	....
East Hampton	Wood View Dairy	2	2	....	....
East Hartford	J. A. Bergren Dairy	2	2	....	....
Fairfield	Wade's Dairy	2	1	1	....
Greenwich	Round Hill Farms	2	2	....	....
Hamden	Brock-Hall Dairy Co.	2	2	....	....
Hartford	Bryant & Chapman Co.	2	2	....	....
	Cloverdale Dairy	2	2	....	....
	A. Dubrow	1	....	1	....
	Farmers' Co-operative, Inc.	2	2	....	....
	H. P. Hood & Sons	1	1	....	....
	Lincoln Dairy	2	1	1	....
Kensington	Ferndale Dairy, Inc.	2	2	....	....
Litchfield	Tollgate Farms	2	2	....	....
Manchester	Dart's Dairy	2	2	....	....
	Sunshine Dairy	3	2	....	1
	West Side Dairy	2	1	1	....
Meriden	Charles Greenbacker & Sons	2	2	....	....
	E. J. Kaemmer	2	2	....	....
	William Knapp	2	2	....	....
	Lawrence Bros.	1	1	....	....
Middlefield	S. Coleman	2	2	....	....
Middletown	Brock's Lake View Dairy	2	2	....	....
	Daniels Farms Dairy	1	1	....	....
	Hillside Dairy	2	1	1	....
Milford	Clover Dairy	1	1	....	....
	McDermott Dairy	1	1	....	....
Nepaug	Mountain View Farm	2	1	....	1

TABLE 5. SUMMARY OF ASSAYS OF VITAMIN D MILK (Concluded)

City or town	Dairy	No. of samples tested	Satis- factory	Passed	Below unitage claimed
New Britain	Bayer Milk Co.	3	2	....	1
	Heslin Dairy	2	1	1	....
	J. E. Seibert & Son	2	1	....	1
	A. J. Spring & Sons	2	2	....	....
New Canaan	Miller Farm Dairy	2	2	....	....
New Hartford	Mountain View Dairy	2	1	....	1
New Haven	Augur's Dairy	2	2	....	....
	General Ice Cream Corp.	3	3	....	....
	H. P. Hood & Sons	3	2	....	1
Newington	Eckert's Dairy	2	2	....	....
	Spring Brook Farm Dairy	2	2	....	....
New London	Michael's Dairy	1	1	....	....
	New London & Mohegan Dairy	1	1	....	....
	Radway's Dairy	2	1	....	1
North Haven	Knudsen Bros.	2	2	....	....
	Twin Maple Farms Dairy	2	1	....	1
Norwalk	Clover Farm Dairy	1	1	....	....
	Devine's Dairy	1	....	1	....
	Strawberry Hill Dairy	1	1	....	....
Norwich	Broad Brook Dairy	1	....	....	1
Norwichtown	Beebe's Dairy	1	1	....	....
Oakville	Sanford Overlook Farms, Inc.	1	1	....	....
	Wayside Dairy	3	2	....	1
Orange	C. A. Peterson	2	1	1	....
Plainville	Fisher Bros.	1	1	....	....
Putnam	Charles B. Gilbert	2	2	....	....
Rocky Hill	Sunny Crest Farm	2	2	....	....
	Harrick's Dairy	2	1	1	....
South Norwalk	Sheffield Farms Co., Maplehurst Div.	1	1	....	....
	Barrett's Dairy	1	1	....	....
Stamford	Deering Dairy	1	1	....	....
Stratford	H. S. Reid	2	2	....	....
	Skipton Dairy Co., Inc. ..	2	2	....	....
	Smyth Farm	2	1	1	....
Thompsonville	Clover Dairy	1	1	....	....
	Torrington Creamery	3	3	....	....
Wallingford	Beaumont Farm	2	1	1	....
	J. H. Daly Co.	2	2	....	....
Waterbury	Brookside Dairies	2	2	....	....
	Cashin's Dairy	2	1	1	....
	R. F. Worden & Son	2	1	1	....
Webster, Mass.	Deary Bros.	1	....	....	1
Westerly, R. I.	City Dairy	1	1	....	....
West Hartford	A. C. Petersen Farms	2	2	....	....
West Haven	Clark Dairy	2	1	1	....
Westport	Ferris Dairy	2	1	1	....
		157	127	19	11

E.S.-333. Dorothy Howard's Sweet Six-Chips-Mix Pickles. Dorothy Howard Preserving Co., Cambridge, Mass. This sample was labelled "Contains cucumbers, sugar, vinegar, pepper, alum, salt, spices," but actually contained onions, strips of red peppers and cauliflower as well as cucumbers.

W.M.-22. Jes-So Brand Hot Mixed. Sweet Life Food Corp., Brooklyn, N. Y. Declared ingredients were "pickles, cauliflower, onions, peppers, spices, dist. vinegar, turmeric, 1/10 of 1% benzoate of soda"; besides these ingredients a large quantity of sliced carrot was present.

K.N.-185. Society Brand Sweet Relish. Society Pickle Products Corp., Brooklyn, N. Y. Declared ingredients were "pickles, tomatoes, cauliflower, peppers, sugar, salt, distilled vinegar, flavor and certified color." Sample was passed.

Popcorn

Two official samples of popcorn were examined; both were short weight:

E.S.-461. Pop Corn Ball on Stick. A. P. Franke's Honey Boy Popcorn, Inc., West Haven, Conn. Short weight 0.60 oz.

E.S.-460. Pop Corn Balls. Terry's Popcorn Confections, West Haven, Conn. Short weight 1.24 oz.

Salad Dressings and Mayonnaise

Nine official samples of mayonnaise, three of French dressing and four of other types of salad dressing were examined. Ten were passed and six were misbranded.

Mayonnaise

Prior to August, 1950, when new Federal standards for mayonnaise, French dressing and other salad dressings appeared,¹ there was no legal standard for any salad dressing except the old advisory standard for mayonnaise, which was as follows:²

"Mayonnaise, Mayonnaise Dressing, Mayonnaise Salad Dressing. The semisolid emulsion of edible vegetable oil, egg yolk, or whole egg, a vinegar, and/or lemon juice, with one or more of the following: Salt, other seasoning commonly used in its preparation, sugar and/or dextrose. The finished product contains not less than 50 percent of edible vegetable oil."

The new regulations for mayonnaise are much more detailed. The quantitative specifications in these regulations require 65 per cent instead of 50 per cent of vegetable oil, and vinegar equivalent to not less than 2½ per cent of acetic acid. These specifications are more in line with what has long been the composition of market mayonnaise, whose oil content has averaged about 78 per cent.³

The samples reported in this bulletin were examined before the new regulations became effective; analyses are given in Table 6. Eight samples were passed and one was misbranded.

¹ *Federal Register*, **15**, 5227-5232 (1950).

² *Rules and Regulations Relating to the Food and Drug Law of Connecticut, Revision of July 1, 1937*, p. 101.

³ *Conn. Agr. Expt. Sta. Bul.* **415**, 692 (1938); **528**, 31 (1949); **538**, 27 (1950).

TABLE 6. MAYONNAISE

No.	Manufacturer and brand	Egg, per cent	Vegetable oil, per cent	Vinegar, per cent	Sugar, salt, spices, per cent	Added water, per cent	Remarks
K.N.-115	Chicago Dietetic Supply House, Inc., Chicago, Ill. <i>Cellu Salt-Free Soyamaise</i> .....	.....	.....	.....	.....	.....	Sample was passed because oil content was sufficient to class it as a mayonnaise.
L.R.-37	J. H. Filbert, Inc., Baltimore, Md. <i>Mrs. Filbert's Quality</i>	6.52	74.25	8.00	7.97	3.26	Oil was cottonseed oil; passed.
E.C.-316	Hi-Hat Food Products Co., Providence, R. I. <i>Hi-Hat</i>	8.50	71.05	8.00	12.04	0.41	Oil was corn or soy oil; passed.
J.W.-118	Korbro Oil Corp., Brooklyn, N. Y. <i>Silver Star</i>	8.37	70.92	13.25	4.59	2.87	Oil was cottonseed oil; passed.
E.S.-226	Merit Food Co., Inc., Hackensack, N. J. <i>Merit Lemonaise</i>	3.84	78.93	10.40	6.83	0.00	Oil was corn or soy oil; passed.
K.C.-114	Purity Food Co., Bridgeport, Conn. <i>Wonder Blend</i>	6.90	73.16	9.75	10.19	0.00	Oil was corn or soy oil; mis- branded because not labelled with manufacturer's name and address.
S.O.-22	Recipe Foods, Inc., Baltimore, Md. <i>Bennett's Prize Recipe</i>	7.93	67.64	11.25	13.18	0.00	Oil was corn or soy oil; passed.
E.S.-406	Salad King Co., Baltimore, Md. <i>Salad King</i> ..	5.94	67.57	10.75	14.52	1.22	Oil was cottonseed oil; passed.
E.C.-315	Otto Seidner, Inc., Westerly, R. I. <i>Mayon- naise by Seidner</i>	13.13	65.80	13.47	7.60	0.00	Oil was cottonseed oil; passed.

French Dressing

The new Federal standards for French dressing require that this product contain not less than 35 per cent of vegetable oil and not more than 0.75 per cent of emulsifying agents, including egg solids. These standards were not in force in 1949, but nevertheless we considered that the public understanding of the composition of French dressing had always been that it was essentially a mixture of a substantial proportion of oil with vinegar or lemon juice, and that preparations consisting chiefly of diluted vinegar, thickened with gum and with little or no oil, were not French dressing.

Three samples labelled "French Dressing" were analyzed in 1949; only one was passed:

A.F.-328 and 329. Old Monk French Dressing. Old Monk Co., New York, N. Y. Labelled "Made with the finest ingredients—vegetable and olive oil, selected vinegar, sugar, salt, paprika and tragacanth." Analysis showed 52.63 per cent of total oil in one sample and 39.67 per cent in the other, but the oil was almost wholly cottonseed oil, the olive oil content not exceeding 2.3 per cent, and the claim for the presence of olive oil was therefore misleading.

J.W.-119. Robinson's Perfect French Dressing. C. C. Robinson, Wallingford, Conn. Labelled "Contents—Corn oil, tomato, sugar, salt, vinegar, spices, onion, flavorings, and strictly fresh lemon juice." Calculated composition from the analysis was: Egg yolk, 5.09; corn oil, 20.27; vinegar and lemon juice, 45.00; sugar, salt and spices, 18.56, and added water, 11.08 per cent. The sample was passed.

Other Salad Dressings

Of the four following dressings one was passed and three were misbranded:

A.F.-331. Old Monk Russian Dressing. Old Monk Co., New York, N. Y. Labelled "Made with selected egg yolks, a blend of vegetable and olive oil, mustard, sugar, paprika and sweet pickles." Analysis showed 39.93 per cent of total oil, which was nearly all cottonseed oil. Not more than 0.45 per cent of olive oil was present, and the sample was therefore misbranded.

A.F.-332. Old Monk Tartare Sauce. Old Monk Co., New York, N. Y. Labelled "Made with a blend of olive and vegetable oil, selected egg yolks, French capers, vinegar." Analysis showed 50.40 per cent of total oil, but this oil was almost entirely cottonseed oil, not more than 0.76 per cent of olive oil being present. Sample was misbranded.

A.F.-330. Old Monk Thousand Island Dressing. Old Monk Co., New York, N. Y. Labelled "Made with selected egg yolks, a blend of vegetable and olive oil, mustard, sugar, paprika and sweet pickles." Total oil content was 42.40 per cent, but no more than 0.51 per cent was olive oil, the balance being cottonseed oil. Sample was misbranded.

E.S.-297. Pfeiffer's Chef Salad Dressing. Pfeiffer's Food Products, Inc., Buffalo, N. Y. Labelled "Consists of pure vegetable oils (corn, cotton) blended with olive oil, tarragon vinegars and spices." Calculated composition from the analysis was: Egg yolk, 3.62; vegetable oil, 51.65;

vinegar, 33.15, and sugar, salt and spices, 11.58 per cent. The oil was mostly cottonseed oil, with not more than 2.6 per cent of olive oil, but the sample was passed.

Sauerkraut

Forty samples of canned sauerkraut were submitted by the Commissioner, chiefly for information on the variation in composition of market sauerkraut as canned at the present time. Nineteen were passed and 21 gave abnormal analyses. Analyses are given in Table 7.

Under the old advisory standard,¹ sauerkraut was defined as follows:

"The product, of characteristic acid flavor, obtained by the full fermentation, chiefly lactic, of properly prepared and shredded cabbage in the presence of not less than 2 percent nor more than 3 percent of salt. It contains, upon completion of the fermentation, not less than 1.5 percent of acid, expressed as lactic acid. Sauerkraut which has been rebrined in the process of canning or repacking, contains not less than 1 percent of acid, expressed as lactic acid."

Under this definition, and in the common understanding of the term, sauerkraut is the product obtained by allowing shredded cabbage to undergo natural fermentation in the presence of salt. A mixture of shredded unfermented cabbage and vinegar is not sauerkraut, but pickled cabbage. However, during the last war, when government regulations did not permit the packing of sauerkraut in "tin" cans, the use of vinegar and sulphur dioxide as preservatives was permitted when unsterilized sauerkraut was packed in glass jars. A number of such packs were analyzed in 1945 and 1946.² They were not typical of peacetime canned sauerkraut, and it was to obtain information on the normal product of commerce that the present samples were examined.

Comparatively few analyses of canned sauerkraut have been reported in the literature. By far the largest collection of analyses is that of Pederson,³ who examined 332 samples obtained from packers throughout the country. As a result of his investigations, he concluded that the composition of the liquid portion of satisfactory canned sauerkraut should be as follows:

	<i>Ideal analysis</i> <i>per cent</i>	<i>Permissible analysis</i> <i>per cent</i>
Total acidity as lactic acid	1.1 -1.5	1.0 up
Volatile acidity as acetic acid	0.15-0.30	0.10-0.30
Ratio of volatile to non-volatile acid	0.20-0.30	0.15-0.35
Alcohol	0.15-0.25	0.10-0.35
Salt	1.7 -2.4	1.5 -2.5

In an earlier bulletin,⁴ Pederson states that cabbage contains from 3 to 4 per cent of sugar, while sauerkraut contains from a trace to none.

¹ *Rules and Regulations Relating to the Food and Drug Law of Connecticut, Revision of July 1, 1937*, p. 85.

² *Conn. Agr. Expt. Sta. Bul.* **499**, 27 (1946); **510**, 28 (1947).

³ *N. Y. Agr. Expt. Sta. (Geneva) Bul.* **693** (1940).

⁴ *N. Y. Agr. Expt. Sta. (Geneva) Bul.* **595** (1931).

TABLE 7. SAUERKRAUT

No.	Manufacturer and brand	Total acidity as lactic acid %	Volatile acidity as acetic acid %	Ratio of volatile to non-vol. acid	Salt %	Sugars as invert sugar %	Drained wt., oz.	Remarks
E.S.-181	Albion Produce Co., Inc., Albion, N. Y. <i>Mrs. Wiggs'</i> ..	1.40	0.35	0.25	1.81	0.72	24	High in volatile acidity.
E.S.-309	Castle Co., Lyons, N. Y. <i>Castle</i>	1.51	0.28	0.18	1.35	0.69	25	Low in salt.
E.S.-298	Empire State Pickling Co., PHELPS, N. Y. <i>Silver Floss</i> ..	1.33	0.35	0.26	1.93	0.56	24	High in volatile acidity.
E.S.-64	First National Stores, Inc., Somerville, Mass. <i>FiNaSt</i> ...	1.13	0.29	0.26	2.14	0.29	27	Pass.
E.S.-126	Flagmaid Foods, Inc., Stamford, Conn. <i>Flagmaid</i>	1.40	0.29	0.21	1.56	0.68	25	Pass.
E.S.-224	General Pickling & Food Products Corp., New York, N. Y. <i>Gee-Kay</i>	1.30	0.38	0.29	1.71	0.86	26	High in volatile acidity.
E.S.-216	Great Atlantic & Pacific Tea Co., New York, N. Y. <i>Grade A</i>	1.71	0.39	0.23	1.88	1.04	27	Contains unfermented cabbage.
E.S.-373	Great Atlantic & Pacific Tea Co., New York, N. Y. <i>Grade A</i>	1.13	0.25	0.22	1.64	1.02	21	Contains unfermented cabbage; low in drained solids.
E.S.-378	F. W. Gunther Co., Racine, Wis. <i>Gunthers</i>	1.57	0.31	0.20	1.51	0.11	16	Pass (19 oz. can).
E.S.-300	Haxton Foods, Inc., Oakfield, N. Y. <i>Blue Boy</i>	1.51	0.32	0.21	2.02	0.93	27	High in volatile acidity.
E.S.-292	Hodes Bros., New Haven, Conn. <i>Social</i>	0.80	0.23	0.29	2.54	0.42	23	Low in total acidity and high in salt.
E.S.-287	Krasdale Foods, Inc., New York, N. Y. <i>Krasdale</i>	1.39	0.29	0.21	1.62	0.92	27	Pass.
E.S.-87	Krasne Bros., New York, N. Y. <i>Bernice</i>	1.63	0.27	0.17	2.06	0.23	23	Pass.
E.S.-296	J. B. LeFrois & Sons, Rochester, N. Y. <i>Le Frois</i>	1.34	0.23	0.17	1.95	0.37	24	Pass.
E.S.-81	Francis H. Leggett & Co., New York, N. Y. <i>Premier</i> ..	1.31	0.46	0.35	1.45	0.14	24	High in volatile acidity and low in salt.

TABLE 7. SAUERKRAUT (Continued)

E.S.-376	Francis H. Leggett & Co., New York, N. Y. <i>Premier</i> ..	1.38	0.27	0.20	1.64	0.70	10	Low in drained solids.
E.S.-76	Libby McNeill & Libby, Chi- cago, Ill. <i>Libby's</i>	1.22	0.25	0.20	1.75	0.20	29	Pass.
E.S.-273	Mrs. Anna Meyer's Pure Foods, Inc., Garfield, N. J. <i>Mrs. Anna Meyer's</i>	1.42	0.29	0.20	2.31	1.13	22	Contains unfermented cabbage; low in drained solids.
E.S.-185	Miner, Read & Tullock, Inc., New Haven, Conn. <i>Sunrise</i>	1.34	0.29	0.22	1.63	1.32	27	Contains unfermented cabbage.
E.S.-293	Miner, Read & Tullock, Inc., New Haven, Conn. <i>Sunrise</i>	1.64	0.29	0.18	1.89	0.32	25	Pass.
E.S.-371	Miner, Read & Tullock, Inc., New Haven, Conn. <i>Sunrise</i>	1.17	0.26	0.22	1.38	0.52	23	Pass.
E.S.-372	Miner, Read & Tullock, Inc., New Haven, Conn. <i>Sunrise</i>	1.31	0.20	0.15	1.40	0.68	23	Pass.
E.S.-211	Morgan Packing Co., Austin, Ind. <i>American Beauty</i>	1.10	0.19	0.17	1.22	0.07	26	Low in salt.
E.S.-400	National Cooperatives, Inc., Chicago, Ill. <i>Co-Op</i>	0.65	0.20	0.31	1.35	0.87	28	Low in total acidity and salt.
E.S.-379	Norway Canning Association, Norway, Mich. <i>North-Way</i> ..	1.46	0.32	0.22	2.59	0.56	18	Pass (19 oz. can).
E.S.-332	Original Canning Co., Mas- sachusetts, N. Y. <i>Original</i>	0.96	0.22	0.23	0.25	0.02	22	Low in total acidity, salt and drained solids.
E.S.-214	S. S. Pierce Co., Boston, Mass. <i>Red Label Extra Fine</i>	1.18	0.30	0.25	1.66	0.65	26	Pass.
E.S.-288	Reid, Murdoch, Chicago, Ill. <i>Monarch</i>	1.17	0.25	0.21	1.99	0.37	23	Pass.
E.S.-187	Reliable Coffee Co., Inc., Bridgeport, Conn. <i>Park City</i>	1.55	0.29	0.19	1.50	0.34	24	Pass.
E.S.-59	Seneca Kraut & Pickling Co., Geneva, N. Y. <i>Seneca</i>	1.55	0.30	0.20	1.66	0.79	26	Pass.
E.S.-93	Silver Lane Pickle Co., East Hartford, Conn. <i>Silver Lane</i>	1.65	0.36	0.22	1.74	0.05	25	High in volatile acidity.
E.S.-384	Silver Lane Pickle Co., East Hartford, Conn. <i>Silver Lane</i>	1.63	0.42	0.26	2.08	0.57	26	High in volatile acidity.

TABLE 7. SAUERKRAUT (Concluded)

No.	Manufacturer and brand	Total acidity as lactic acid %	Volatile acidity as acetic acid %	Ratio of volatile to non-vol. acid	Salt %	Sugars as invert sugar %	Drained wt., oz.	Remarks
E.S.-61	Stokeley-Van Camp, Inc., Indianapolis, Ind. <i>Stokeley's Finest</i>	1.27	0.29	0.23	2.02	0.73	25	Pass.
E.S.-74	Stokeley-Van Camp, Inc., Indianapolis, Ind. <i>Stokeley's Finest</i>	0.88	0.17	0.20	2.24	0.41	20	Low in drained solids.
E.S.-377	Stokeley-Van Camp, Inc., Indianapolis, Ind. <i>Stokeley's Finest</i>	1.26	0.31	0.25	2.28	0.88	14	Low in drained solids.
E.S.-402	Stokeley-Van Camp, Inc., Indianapolis, Ind. <i>Stokeley's Finest</i>	1.14	0.30	0.26	2.05	0.72	26	Pass.
E.S.-403	Stokeley-Van Camp, Inc., Indianapolis, Ind. <i>Stokeley's Finest</i>	1.20	0.30	0.25	2.06	0.65	24	Pass.
E.S.-75	Universal Food Stores, Inc., Norwich, Conn. <i>Thames Valley</i>	0.99	0.27	0.27	1.22	0.29	30	Low in total acidity and salt.
E.S.-375	Universal Food Stores, Inc., Norwich, Conn. <i>Thames Valley</i>	1.33	0.28	0.21	1.63	0.58	23	Low in drained solids.
E.S.-419	Universal Food Stores, Inc., Norwich, Conn. <i>Thames Valley</i>	1.20	0.22	0.19	1.86	0.35	26	Pass.
	Maximum	1.71	0.46	0.35	2.59	1.32		
	Minimum	0.65	0.17	0.15	0.25	0.02		
	Average	1.30	0.29	0.23	1.76	0.57		

When sauerkraut is packed, the solid portion (the shredded fermented cabbage) distributes itself evenly in the liquid portion, regardless of the relative proportion of solid and liquid, so that a can of sauerkraut that actually is mostly juice appears to be well filled with shredded cabbage. This peculiarity offers an opportunity for sophistication, because it permits sauerkraut to be diluted considerably with salt water without the excess liquid being apparent to the eye. It is for this reason that the U. S. Food and Drug Administration has set a limit of not less than 25 ounces of drained solids for each quart of sauerkraut.¹

Examination of the analyses listed in Table 7 shows that 23 of the 40 samples came within the range of Pederson's "permissible analyses" and also contained less than 1 per cent of sugar. This sugar limit, rather than Pederson's "trace or none," was chosen as an indication of the presence of unfermented cabbage, because our analyses proved that nearly all canned sauerkraut contained a fraction of 1 per cent of sugar. The average composition of canned sauerkraut from our analyses is as follows:

Total acidity as lactic acid	1.30 per cent
Volatile acidity as acetic acid	0.29 per cent
Ratio of volatile to total acidity	0.23
Salt	1.76 per cent
Sugar	0.57 per cent
Drained solids per 1 lb. 11 oz. can	25.0 oz.

Spaghetti and Spaghetti Sauce

Three samples each of spaghetti or macaroni and of spaghetti sauce were submitted by the Commissioner; two of these were passed and four were adulterated or misbranded:

K.F.-322. Fancy Triestina Macaroni Products, Bamboline. Cassarino and Carpinteri Co., Inc., New Britain, Conn. Labelled "Made from No. 1 pure semolina." In default of a factory inspection, this sample was passed.

E.C.-340. La Salsa, the Sauce for Epicures. La Salsa Packing Corp., Riverside, Conn. This was a frozen sauce whose declared ingredients were "Tomato puree, imported olive oil, Romano cheese, onion, parsley, tomato paste; celery and carefully selected imported spices. No artificial coloring or flavoring 100% pure." It was also labelled "Meat Sauce Supreme" although no meat was present, and it was therefore misbranded.

K.N.-146. Pepe Brand Home Style Spaghetti Sauce, Meatless. Frank Pepe Macaroni Co., Inc., Waterbury, Conn. Declared ingredients were "Tomato paste, tomatoes, oil, pure leaf lard, cheese, onions, pepper, paprika, salt and oregano." The name of the oil should have been stated.

K.N.-113. Royal Dutch Spaghetti with Mushroom Sauce. Royal Dutch Products Corp., New York, N. Y. The declared list of ingredients was "Pure semolina, olive oil, tomatoes, tomato paste, onions, condiments," which did not include mushrooms. The total fat content was only 0.004 per cent. Therefore, no olive oil was present and the sample was adulterated and misbranded.

¹ Notice of Judgment 9574 (June, 1947).

A.F.-379. Spaghetti Sauce with Meat. Venice Maid Co., Inc., Vineland, N. J. Declared ingredients were "Tomato puree, beef, onions, celery, carrots, bread crumbs, mushrooms, vegetable oil, salt, sugar, olive oil, spices." The squalene value of the separated oil (102 mgm./100 gm.) indicated that about 31 per cent of the oil actually was olive oil but, since the total oil content of the sample was only 1.69 per cent, there was only about 0.52 per cent of olive oil present. Because the presence of olive oil was not emphasized in the labelling, the sample was passed.

K.F.-323. White Spray Thin Macaroni (Macaroncelli). First National Stores, Somerville, Mass. There were minute black specks in this macaroni that were not positively identified but that looked like coal under the microscope.

Spices and Condiments

Six official samples of black pepper, two labelled "imitation" or "compound" pepper, and one of horseradish, as well as two unofficial samples of horseradish submitted by a private individual, were examined. Eight of these were passed and three were adulterated or misbranded:

K.N.-137. Angela Brand Pure Black Pepper. Sample was black pepper, but bore no packer's name and was therefore misbranded.

K.F.-463. Blue Diamond Pure Black Pepper. Henry Bresky & Sons, Bridgeport, Conn. Sample was passed.

K.F.-423. Compound Black Pepper. Archibald and Kendall, Inc., New York, N. Y. Labelled "This compound pepper is composed of cereal, pure red pepper, pure black pepper, oil." Microscopic examination showed that the chief ingredient was finely ground corn meal. Some pepper was present, but such a mixture is not "compound pepper" but "adulterated pepper," and its sale is not legal under any form of labelling.

J.W.-124, 6334 and 6335. Horseradish. Two of these samples were straight prepared horseradish; sample 6335 appeared to be adulterated with turnip.

E.C.-200. Imitation Black Pepper. H. Scoenfeld & Sons, Inc., New York, N. Y. Labelled "Cereals, oleoresin of capsicum, salt, artificial flavor." Since this product was properly labelled as imitation pepper, it was passed.

K.F.-446. Lily Pure Black Pepper. Lily Food Products, Brooklyn, N. Y. Sample was passed.

E.S.-387. Primrose Black Pepper. Perrelli Bros., New Haven, Conn. Sample was passed.

J.C.-3. Safe Owl Finer Food Black Pepper. Safe Owl Products, Inc., Brooklyn, N. Y. Sample was passed.

K.C.-117. Waldorf High Grade Brand Pure Ground Black Pepper. Waldorf Specialty Co., Bridgeport, Conn. Sample was passed.

Spray Residues

Since 1931, apples grown in the orchards of this State have been sampled by agents of the Dairy and Food Commissioner or his successor, the Food and Drug Commissioner, and examined in this laboratory for spray residue. During the 1949 season, 83 samples were examined. Of these, 13, or 16 per cent, exceeded the tolerances of 0.050 grain/lb. of lead and 0.025 grain/lb. of arsenic (expressed as the trioxide, As_2O_3). The samples containing excessive spray residue are listed in Table 8. It should be noted that apples from the A. S. Waterbury Orchard of Danbury were found to contain excessive spray residue in 1946 and 1948 as well as 1949; that apples from the Woodbury Orchards of Woodstock were similarly contaminated in both 1948 and 1949; and that those from the Hallock Orchard of Washington contained excessive spray residue in 1946 and 1949.¹

TABLE 8. APPLES CONTAINING EXCESSIVE SPRAY RESIDUE

No.	Orchard	Lead, grains/lb.	Arsenic trioxide grains/lb.
	<i>Danbury</i>		
S.O.-38	Albert Waterbury	0.058	0.030
	<i>Easton</i>		
K.C.-105	Aspetuck Orchards	0.056	0.025
	<i>Glastonbury</i>		
W.M.-45	Pilgard Orchard	0.155	0.009
	<i>Middlefield</i>		
W.M.-54	Lyman Farms	0.072	0.042
	<i>Norwichtown</i>		
E.C.-312	Wallstone Orchards	0.093	0.047
	<i>Washington</i>		
K.F.-427	Hallock Orchard	0.058	0.026
K.F.-429	Hallock Orchard	0.081	0.035
K.F.-430	Hallock Orchard	0.104	0.047
K.F.-431	Hallock Orchard	0.059	0.022
K.F.-432	Hallock Orchard	0.059	0.030
	<i>West Willington</i>		
A.F.-638	Robart Turkey Farm	0.108	0.039
	<i>Woodstock</i>		
L.R.-33	Woodbury Orchards	0.075	0.029
L.R.-34	Woodbury Orchards	0.070	0.028

¹ Conn. Agr. Expt. Sta. Bul. 510, 33 (1947); 538, 29 (1950).

Twelve samples of miscellaneous materials were submitted by members of the Station staff and others for testing for spray residue. Arsenic was found in four samples: Some bean leaves (526 p.p.m. As_2O_3), leaves from an unknown plant (0.9 p.p.m.), a rotenone dust (647 p.p.m.), and some strawberry leaves (5.9 p.p.m.). Selenium was found in eight samples: An aster (40 p.p.m.), three samples of chrysanthemum leaves and stems (30, 120 and less than 1 p.p.m.), and four samples of soil (3.6, 2.3 and two less than 1 p.p.m.).

Syrups

Forty-nine official and one unofficial samples were examined. Thirty were fruit, chocolate, coffee or vanilla flavored syrups, either carbonated beverage base syrups or syrups for preparing beverages in the home; three were sold as pure maple syrup; and 17 were other pancake syrups. Thirty-five were adulterated or misbranded and 15 were passed.

Fruit, Chocolate, Coffee and Vanilla Flavored Syrups

Most of these samples were examined for labelling only:

E.C.-273. B.F.C. Pure Orange Flavored Syrup. Roger Williams Wholesale Grocery Co., Providence, R. I. Misbranded because not labelled "Artificially Colored".

A.F.-612. Delicious Our-Own Syrup, Milk Chocolate Flavored. Eastern Specialty Products, Inc., Boston, Mass. Sample was passed.

K.N.-121. Duchess Brand Grape Flavored Syrup. Samco Syrup Co., Hartford, Conn. Misbranded because not labelled "Artificially Flavored and Colored".

A.F.-610. Eclipse Coffee Syrup. Eclipse Food Products Corp., Providence, R. I. Misbranded because of claim for "fresh roasted coffee" and because not labelled "Artificially Colored".

K.N.-168. Eclipse Punch Flavored Syrup. Eclipse Food Products Corp., Providence, R. I. Misbranded because not labelled "Artificially Flavored and Colored".

K.N.-167. Eclipse Pure Lemon & Lime Flavored Syrup. Eclipse Food Products Corp., Providence, R. I. Misbranded because not labelled "Artificially Colored".

K.N.-169. Eclipse Pure Vanilla Syrup. Eclipse Food Products Corp., Providence, R. I. Misbranded because not labelled "Artificially Colored".

K.N.-166. Eclipse Raspberry Flavored Syrup. Eclipse Food Products Corp., Providence, R. I. Because of the declared "raspberry juice, imitation flavors, citric acid and U. S. certified colors," this sample should have been labelled "Raspberry and Imitation Raspberry Syrup, Artificially Flavored and Colored".

K.N.-165. Eclipse Strawberry Flavored Syrup. Eclipse Food Products Corp., Providence, R. I. Should have been labelled "Strawberry and Imitation Strawberry Syrup, Artificially Colored".

K.F.-388. Fruit Punch Za-Rex, a Pure Fruit Flavored Syrup. S. C. Clayton Co., Inc., Boston, Mass. Should have been labelled "Artificially Colored".

W.M.-30. Grandmother's Brand Orange Fruit Flavored Syrup. Whipple Co., Natick, Mass. Should have been labelled "Artificially Colored".

K.N.-215. Lincoln Pure Fruit Flavored Orange Syrup. Lincoln Foods, Inc., Lawrence, Mass. Should have been labelled "Artificially Colored".

K.F.-386. Raspberry Za-Rex, a Pure Fruit Flavored Syrup. S. C. Clayton Co., Inc., Boston, Mass. Should have been labelled "Artificially Colored".

K.F.-385. Strawberry Za-Rex, a Pure Fruit Flavored Syrup. S. C. Clayton Co., Inc., Boston, Mass. Should have been labelled "Artificially Colored".

K.N.-208. Sweetee Superb Syrups Coffee Syrup. Frederick Lawrence Co., Boston, Mass. Should have been labelled "Artificially Colored".

K.N.-117, 173 and 210. Sweetee Superb Syrups Pure Fruit Flavored Punch Syrup. Frederick Lawrence Co., Boston, Mass. Samples were not flavored wholly with pure fruit but contained artificial flavoring also. They were consequently misbranded.

K.N.-172 and 209. Sweetee Superb Syrups Pure Fruit Flavored Strawberry Syrup. Frederick Lawrence Co., Boston, Mass. These samples were adulterated because the flavor was at least partly artificial.

W.M.-31 and K.N.-216. Sweetee Superb Syrups Pure Fruit Flavored Syrup—Fruit Punch. Frederick Lawrence Co., Boston, Mass. Misbranded; not a pure fruit flavored syrup; label should have read "Fruit Punch Syrup, Artificially Flavored and Colored".

K.N.-207. Sweetee Superb Syrups—a Pure Fruit Flavored Syrup—Orange. Frederick Lawrence Co., Boston, Mass. Should have been labelled "Artificially Colored".

W.M.-38. Sweet Life Pure Lemon & Lime Flavored Syrup. Sweet Life Food Corp., Brooklyn, N. Y. Should have been labelled "Artificially Colored".

W.M.-37 and K.N.-181. Sweet Life Pure Orange Flavored Syrup. Sweet Life Food Corp., Brooklyn, N. Y. Should have been labelled "Artificially Colored".

K.N.-183. Sweet Life Pure Punch Flavored Syrup. Sweet Life Food Corp., Brooklyn, N. Y. Should have been labelled "Artificially Colored".

W.M.-39 and K.N.-182. Sweet Life Pure Raspberry Flavored Syrup. Sweet Life Food Corp., Brooklyn, N. Y. Should have been labelled "Artificially Colored".

K.F.-387. Za-Rex Orange, a Pure Fruit Flavored Syrup. S. C. Clayton Co., Inc., Boston, Mass. Should have been labelled "Artificially Colored".

Maple Syrup

All three samples were passed:

A.F.-201. Maple Hill Pure Vermont Maple Sap Syrup. New England Maple Syrup Co., Boston, Mass. Analysis showed water, 33.96, and ash, 0.47 per cent; lead number, 1.62.

F.H.-998. Pure Vermont Maple Syrup. Green Mountain Packing Co., St. Albans, Vt. Analysis showed water, 32.46, and ash, 0.59 per cent; the lead number was 2.09.

S.O.-45. Pure Vermont Maple Syrup. Hogback Mountain Gift Shop, Brattleboro, Vt. This sample contained a considerable residue of large sucrose crystals such as sometimes separate from maple syrup on long standing. Analysis of the liquid portion was: Water, 30.80, and ash, 0.70 per cent; lead number, 1.90.

Other Pancake Syrups

Twelve of these were labelled with claims for the presence of some maple syrup; the other five made no such claims, but some were given names suggesting maple. Eleven were passed and six were adulterated or misbranded:

W.M.-75 and E.S.-150. Ann Page Syrup. Great Atlantic & Pacific Tea Co., New York, N. Y. Labelled "85% sugar syrup flavored with 15% maple syrup." Water, 32.84, and ash, 0.12 per cent; lead number, 0.29. Samples were passed.

E.S.-229, 294 and 295. Co-Op Pancake Syrup. National Co-operatives, Inc., Chicago, Ill. Labelled "Made from 85% pure cane sugar syrup, 15% pure maple syrup." Average analysis was: Water, 33.78, and ash, 0.15 per cent; lead number, 0.53. Passed.

E.S.-127. Ehlers Grade "A" Pancake Syrup. Albert Ehlers, Inc., Brooklyn, N. Y. Labelled "Made of cane and 15% maple syrups". Analysis showed water, 31.29, and ash, 0.14 per cent, with a lead number of only 0.09, indicating no maple syrup at all. Sample was adulterated and misbranded.

4009. Eversweet Pancake Syrup. Miami Cola Syrup Co., New Haven, Conn. Total sugar content was 68.6 per cent.

E.S.-120. Golden Glow Pancake Syrup. Natural Sugars, Inc., New York, N. Y. Labelled "Made from 85% pure cane syrup and 15% pure maple syrup." Water, 32.66, and ash, 0.16 per cent; lead number, 0.21. Sample was passed.

A.F.-221. Highland Syrup. Cary Maple Sugar Co., Inc., St. Johnsbury, Vt. Labelled "Made of cane and maple sugar syrups." Water, 30.15, and ash, 0.23 per cent; lead number, 0.29. Sample was passed.

E.S.-385. High Star Syrup. Hodes Bros., New Haven, Conn. Labelled "Pure cane sugar syrup, pure maple syrup." Water, 29.41, and ash, 0.17 per cent; lead number, 0.11. Sample was passed.

E.S.-223. Maple Sweet Brand Syrup. Silver Lane Syrup Co., East Hartford, Conn. Labelled "Prepared with cane and corn sugar, water, caramel color and non-maple vegetable extractives, citric acid, preserved with one-tenth of one per cent benzoate of soda." The "vegetable extractives" declared on the label of this product presumably were fenugreek. This was an imitation maple syrup and should have been so labelled.

K.N.-118. Maplmist Table Syrup. B. H. Goodwin & Son, Bristol, Conn. This product bore no list of ingredients and the name "Maplmist" was misleading.

A.F.-214. Pancake Syrup. Sweet Life Corp., Brooklyn, N. Y. Labelled "Composed of pure cane and maple sugar syrup." Water, 30.84, and ash, 0.14 per cent; lead number, 0.08. Sample contained little or no maple syrup and was adulterated and misbranded.

S.O.-29 and 42. V-Brand Imitation Pancake Syrup. Vee Syrup Co., Inc., Brooklyn, N. Y. These samples contained 38.89 per cent of water, which exceeded the limit of 35 per cent for pancake syrups.

E.S.-151. Vermont Maid Syrup. Penick & Ford, Ltd., Inc., Burlington, Vt. Labelled "Made from cane and maple sugars." Water, 32.92, and ash, 0.12 per cent; lead number, 0.19. Sample was passed.

A.F.-313. Za-Rex Cane and Maple Syrup. S. C. Clayton Co., Inc., Boston, Mass. Labelled "Made from cane syrup and pure maple syrup." Water, 33.31, and ash, 0.07 per cent; lead number, 0.46. Sample was passed.

Vegetable Products

Canned Tomatoes

Eight samples of canned tomatoes, all of which were passed, were submitted by the Commissioner:

A.F.-606. Celeste Brand Tomatoes, Standard, Hand Packed. Fair View Packing Co., Inc., Hollister, Calif. Fill of container was 97.80 per cent and drained weight was 68 per cent of the capacity of the can, which met the Federal standards. The tomatoes appeared to have been peeled and packed whole by hand as labelled.

E.S.-393 to 398 inclusive. Connecticut's Pride Brand Hand Packed Tomatoes. Orange Canning Co., Inc., Orange, Conn. One of the six samples (*E.S.-395*) contained a small portion of an insect, but as no insect infestation was found in any other sample, all were passed.

E.S.-281. Nannella Brand Tomatoes, Whole Unpeeled Plum Style Tomatoes. Bercus Richards Packing Co., Sacramento, Calif. The tomatoes were all unpeeled plum style tomatoes as labelled, and were substantially whole. The fill of container was 95.72 per cent and the drained weight was 53 per cent of the capacity of the can.

Tomato Juice

Twelve official samples of tomato juice were analyzed for ascorbic acid (vitamin C) with results as shown in Table 9.

W.M.-19. Webster's Tomato Juice Cocktail, packed by J. L. Webster Co., Inc., Cheriton, Va., was tested for foreign matter, and none was found.

TABLE 9. TOMATO JUICE

No.	Manufacturer and brand	Ascorbic acid, mgm./cc.
E.S.-278	Campbell Soup Co., Camden, N. J. <i>Campbell's</i>	0.12
E.S.-280	Hershel California Fruit Products Co., Inc., San José, Calif. <i>Contadina</i>	0.19
E.S.-231	Hunt's Foods, Inc., San Francisco, Calif. <i>Hunt's</i>	0.11
E.S.-235	H. J. McGrath Co., Baltimore, Md. <i>McGrath's Champion</i>	0.12
E.S.-279	Morgan Packing Co., Austin, Ind. <i>Columbus</i>	0.10
E.S.-234	S. S. Pierce Co., Boston, Mass. <i>Red Label</i>	0.13
E.S.-230	S & W Fine Foods, Inc., San Francisco, Calif. <i>S & W</i>	0.10
E.S.-254	S & W Fine Foods, Inc., San Francisco, Calif. <i>S & W</i>	0.15
E.S.-233	U. S. Product Corp., Ltd., San José, Calif. <i>Signet</i>	0.08
E.S.-267	Valley View Canning Co., Santa Maria, Calif. <i>Masterpiece</i>	0.12
E.S.-232	Wegner Canning Corp., Sodus, N. Y. <i>Wegner</i>	0.09
E.S.-236	Westfield Planters Co-operative Fruit Products, Westfield, N. Y. <i>Westfield Maid</i>	0.13

Tomato Paste and Purée

Federal standards require that tomato paste contain not less than 25.00 per cent of salt-free solids, and that tomato purée contain not less than 8.37 but less than 25.00 per cent of salt-free solids. Eleven official and two unofficial samples of tomato paste and eight official samples of tomato purée were examined; 16 of these were passed and five were substandard. Analyses are given in Table 10.

Other Canned Vegetables

Three samples of olives and seven other official samples of miscellaneous vegetables and one unofficial sample of cooked squash were examined. Four were passed and seven were adulterated or misbranded:

K.N.-136. Angela Brand Antipasto Style Crushed Olives. Angela Products, Brooklyn, N. Y. Ingredient declaration was "Contains: Olives, capers, celery, pimentos, vinegar, olive oil, spices." The name "Crushed Olives" is not a sufficient name for a mixture such as this.

A.F.-365. Colossal Spanish Olives, Pimento Stuffed, Hickory Flavored, Packed in Vegetable Brine. B. M. Moritz, Inc., New York, N. Y. Sample was passed.

7781 and A.F.-640. Cooked Squash. Both these samples were submitted because of their very bitter taste. We confirmed the bitter taste in both cases. No doubt these were specimens of the bitter variety of squash that has been encountered several times in the last two years.¹

¹ Conn. Agr. Expt. Sta. Bul. 538, 40 (1950).

TABLE 10. TOMATO PASTE AND PURÉE

No.	Manufacturer and brand	Total solids, per cent	Salt, per cent	Salt-free solids, per cent	Remarks
E.C.-218	Avon Canning Co., Stockton, Calif. "Corina" Tomato Pulp	14.09	0.22	13.87	"Tomato pulp" is a synonym for tomato purée; pass.
K.C.-78	F. M. Ball Co., Oakland, Calif. <i>Adelina Fancy Tomato Paste</i>	24.76	0.46	24.30	Low in salt-free solids.
7299	Birdsall & Wilcox, New Haven, Conn. <i>Lido Tomato Paste</i>	25.35	0.32	25.03	Pass.
5946	Birdsall & Wilcox, New Haven, Conn. <i>Tomato Paste</i>	19.53	0.28	19.25	Low in salt-free solids.
E.S.-284	Hershel California Fruit Products Co., San José, Calif. <i>Contadina Fancy Tomato Paste</i>	25.40	0.40	25.00	Pass.
E.S.-285	Hershel California Fruit Products Co., San José, Calif. <i>Contadina Fancy Tomato Paste</i>	26.09	0.88	25.21	Pass.
E.S.-282	Hershel California Fruit Products Co., San José, Calif. <i>San Leo Tomato Purée</i>	9.77	0.19	9.58	Pass.
E.S.-283	Palermo Products Corp., Vineland, N. J. <i>Marca Palermo Tomato Purée</i>	9.95	0.21	9.74	Pass.
K.N.-134	D. J. Salomone Co., New York, N. Y. <i>Salò Tomato Paste</i>	23.76	0.26	23.50	Low in salt-free solids.
K.N.-180	D. J. Salomone Co., New York, N. Y. <i>Salò Tomato Paste</i>	25.18	0.28	24.90	Low in salt-free solids.
K.N.-184	D. J. Salomone Co., New York, N. Y. <i>Salò Tomato Paste</i>	24.62	0.23	24.39	Low in salt-free solids.
K.N.-186	D. J. Salomone Co., New York, N. Y. <i>Salò Tomato Paste</i>	25.34	0.22	25.12	Pass.
K.N.-187	D. J. Salomone Co., New York, N. Y. <i>Salò Tomato Paste</i>	25.28	0.20	25.08	Pass.
E.S.-208	Gus Sclafani, Stamford, Conn. <i>Aldina Tomato Purée</i>	12.00	0.15	11.85	Pass.
F.S.-218	Gus Sclafani, Stamford, Conn. <i>Sclafani Extra Heavy Tomato Purée</i>	15.04	0.21	14.83	Solids content is high for a purée; pass as "extra heavy".
S.O.-8	Joseph L. Sclafani, Inc., Brooklyn, N. Y. <i>Sclafani Tomato Purée</i>	13.42	0.10	13.32	Pass.
F.S.-237	Standard Beef Co., New Haven, Conn. <i>Sachem's Head Guilford Tomato Purée</i>	11.25	0.12	11.13	Pass.
F.S.-238	Standard Beef Co., New Haven, Conn. <i>Sachem's Head Guilford Tomato Purée</i>	10.86	0.12	10.74	Pass.
E.S.-239	Standard Beef Co., New Haven, Conn. <i>Sachem's Head Guilford Tomato Purée</i>	11.32	0.11	11.21	Pass.
E.S.-427	West Coast Packing Corp., Long Beach, Calif. <i>Campania Tomato Paste</i>	25.58	0.33	25.25	Pass.
E.S.-428	West Coast Packing Corp., Long Beach, Calif. <i>Campania Tomato Paste</i>	25.76	0.37	25.39	Pass.

K.F.-394 and 395. Family Brand Mexican Garbanzos. D. E. Foote & Co., Inc., Baltimore, Md. This product was also labelled "Family Brand Ceci Cotti". The Spanish name for the chick pea is "Garbanzo" and the Italian name is "Cece".¹ The samples were misbranded for failure to declare the English name and because the peas failed to fill the can to within 3/16 inch of the top of the can as Federal regulations require.

E.S.-374. Farmers Best Brand Eggplant. Connecticut High Grade Products Co., New Haven, Conn. Labelled "Contains egg plants, pure olive oil, peanut oil, vinegar, origanum, garlic, red pepper." The total oil content was 20.78 per cent. The squalene value of this oil, 61 mgm./100 gm., indicated that only 11 per cent of it was olive oil; that is, that the sample contained 18 per cent of peanut oil and only 2 per cent of olive oil. The listing of the "pure olive oil" before the peanut oil was not therefore justified.

E.S.-212 and 213. Favorita Brand Peperoni. Eastern Packing Co., New Haven, Conn. Declared ingredients were "peppers, tomato, parsley, basilico, oregane, tomato paste, olive oil, garlic." Sample was passed.

K.F.-368. Potato. Sample was suspected of being wax coated, but it was not.

W.M.-16. Skippers Choice Stuffed Olives. Universal Food Stores, Inc., Norwich, Conn. Sample bore no ingredient declaration.

Vinegar

Nine samples of wine vinegar, three of blended distilled and wine vinegar, two of distilled vinegar flavored with red wine, one of cider vinegar and one unclassified sample of vinegar, or 16 samples in all, were examined for the Commissioner. Two samples of cider vinegar and one of wine vinegar were examined for grocers. Of the 19 samples, 11 were adulterated or misbranded and eight were passed. Analyses are given in Table 11.

Water

Two samples of water were examined for the State Board of Fisheries and Game, and 12 for private individuals. Most of these samples were tested only for their pH or hardness. This Station does not make sanitary analyses of drinking water, although there appears to be a widespread impression that it does. A person desiring to have his well water examined to see if it is safe to drink must submit a sample to one of the private laboratories approved by the State Department of Health.

Two of the samples examined in 1949 were contaminated with chlorinated lime (0.26 and 0.89 per cent available chlorine); one was slightly contaminated with gasoline; and one sample of water from North Farms Reservoir, 5015, was found to contain 1.3 parts per million of potassium. Analyses of the other 11 samples are not of interest.

¹ Winton and Winton, "Structure and Composition of Foods", Vol. II, p. 340.

No.	Manufacturer or distributor and brand	Total solids, per cent	Total ash, per cent	Total acidity as acetic acid, per cent	Tartaric acid, per cent	Remarks
	<i>Red Wine Vinegar</i>					
K.C.-53	Flagstaff Foods, Perth Amboy, N. J. <i>Flagstaff</i>	1.61	0.16	5.36	0.051	Labelled "Reduced with water to full strength"; passed.
J.C.-69	Old Dutch Mustard Co., New York, N. Y.	1.38	0.20	5.03	0.064	Labelled "Reduced with water to 5% acidity"; passed.
K.N.-108	Randall Wine Vinegar Co., New York, N. Y. <i>Eldeen</i>	4.33	0.23	5.41	0.000	Adulterated with distilled vinegar or acetic acid.
E.S.-182	Randall Wine Vinegar Co., New York, N. Y. <i>Eldeen</i>	1.55	0.19	4.77	0.058	Diluted with water and not so labelled.
K.C.-93	Rex Wine Vinegar Co., Newark, N. J. <i>Rex</i>	3.93	0.38	4.85	0.061	Labelled "Reduced with water to 5% acidity"; passed.
K.F.-409	Rex Wine Vinegar Co., Newark, N. J. <i>Rex</i>	3.59	0.32	4.59	0.060	Labelled "Reduced with water to 5% acidity"; passed.
K.N.-218	Rex Wine Vinegar Co., Newark, N. J. <i>Rex</i>	3.64	0.33	4.55	0.071	Labelled "Reduced with water to 5% acidity"; does not meet labelled claim; misbranded.
J.C.-28	Rosemarie Packing Co., Brooklyn, N. Y. <i>Rosemarie</i>	0.46	0.13	3.77	0.000	Artificially colored and adulterated with distilled vinegar or acetic acid.
K.F.-142	Rosemarie Packing Co., Brooklyn, N. Y. <i>Rosemarie</i>	0.46	0.13	3.72	0.001	Artificially colored and adulterated with distilled vinegar or acetic acid.
7724	Sunbilt Products Co., Escondido, Calif. <i>Sunbilt</i> .....	.....	.....	4.82	.....	Diluted with water and not so labelled.
	<i>Blended Distilled and Wine Vinegar</i>					
K.F.-408	Bellevue Olive Oil Co., New York, N. Y. <i>Bellevue</i>	1.07	0.13	4.95	0.043	Labelled "Reduced with water to 5% acetic strength"; does not meet labelled claim; misbranded.
K.N.-217	Frederick Fine Foods, Boston, Mass. <i>Gusto</i> .....	.....	.....	4.21	.....	Passed.
K.F.-392	Unita Packing Co., Providence, R. I. <i>Barbera</i> .....	.....	.....	4.60	.....	Labelled "Reduced by water 4% acidity"; passed.
E.S.-361	<i>Distilled Vinegar Flavored with Red Wine</i> Lily Food Products Co., Brooklyn, N. Y. <i>Lily</i> .....	.....	.....	.....	.....	Short volume 0.25 fl. oz., which just met tolerance.
K.N.-235	Muro Importing Co., Inc., Brooklyn, N. Y. <i>Muro</i> .....	.....	.....	5.03	.....	Misbranded because emphasis on "Red Wine" in label was misleading.
E.S.-386	<i>Cider Vinegar</i> V. Tenedine & Sons, Inc., North Haven, Conn. <i>Tenedine's</i>	1.15	0.27	4.37	.....	Labelled "Reduced to 4% acidity"; passed.
7815	Twin City Mfg. Co., Norfolk, Va. <i>Auric</i>	1.43	.....	5.17	.....	Colored with caramel and low in solids; violates G. S. 3896.
7816	Twin City Mfg. Co., Norfolk, Va. <i>Richter's</i>	1.39	.....	4.44	.....	Colored with caramel and low in solids; violates G. S. 3896.
A.F.-372	<i>Vinegar of Unknown Origin</i> Denning S. Peaslee, Farmington, Conn.	0.66	.....	3.43	.....	Low in acidity.

Miscellaneous

Twenty-two samples of miscellaneous foods and other unclassified materials were examined for the Commissioner, and 113 samples of miscellaneous materials were analyzed for city boards of health and police departments and private individuals.

Lithium Chloride Salt Substitutes

The intake of salt (or rather, of sodium) must be restricted in the diets of hypertensive individuals. Salt-free diets are extremely unpalatable to most people, and many patients placed on such diets by their physicians have great difficulty in completely refraining from adding salt to their food. There has therefore been a demand for a substitute material that would make food taste salty but that would contain no sodium. Ammonium chloride has been used to a limited extent, but the flavor of this salt does not very closely resemble that of sodium chloride, and is not particularly palatable to most persons. Recently it was discovered that the chloride of another metal—lithium—tasted very nearly the same as sodium chloride, and shortly thereafter several commercial salt substitutes whose active ingredient was lithium chloride appeared on the market. Because lithium chloride is hygroscopic, it was not practical to dispense the solid salt; therefore, the commercial preparations were marketed as concentrated solutions.

It was believed by the producers, on the basis of animal experiments, that lithium chloride was harmless when used in this manner. Then on February 18, 1949, the American Medical Association issued a press release that attributed the deaths of at least four persons to the use of lithium chloride salt substitutes. Investigation had shown that lithium salts were toxic almost in inverse proportion to the sodium content of the blood, and could cause death in persons on a sodium-restricted diet where they were relatively nontoxic to persons whose salt intake was not restricted. Further, the symptoms of lithium poisoning resembled those of diseases for which a salt-free diet was prescribed, and for this reason the etiology of some cases of lithium poisoning had not at first been suspected.

When this news broke, the Association of New England Food and Drug Officials, at a meeting in Boston on February 24, passed the following resolution:

"Whereas, the potential danger of the use of table salt substitutes containing lithium chloride has become known, the Association of Food and Drug Officials of New England hereby goes on record as opposed without qualification to their continued sale and use as food and opposes their use as drugs until the toxicity and other properties have been determined and such products have been accepted as new drugs by the United States Food and Drug Administration."

Inspectors of the Food and Drug Commission took steps to remove from the market all supplies of lithium chloride salt substitutes that could be found. Six official and one unofficial samples were analyzed by the Station as follows:

6283 and J.C.-269, 270, 271, 272, 273 and 275. "*Westsal*". Westwood Pharmaceuticals Division of Foster Milburn Co., Buffalo, N. Y. Labelled "A salt substitute in liquid form—tastes exactly like salt. Containing: Lithium chloride, citric acid, potassium iodide." Analysis showed lithium chloride, 25.24; potassium iodide, 0.08, and citric acid, 0.16 per cent.

Poisonous Crayons

On December 13, 1948, Alfred L. Burgdorf, M.D., Director of Health of the Hartford Health Department, referred to this Station for examination some crayons that were believed to have been the cause of a child's becoming extremely ill with symptoms of methemoglobinemia. Cases of children having been made sick on eating crayons had been reported before. The toxic ingredients had always been assumed to be aniline dyes, but attempts to duplicate the symptoms when the same dyes were fed to animals had not been successful. Our examination of the crayons submitted to us has led us to believe that, at least in the case of these crayons, the poisonous ingredient was not the color but a white pigment known as "lithopone," which is a mixture of zinc sulphide and barium sulphate. The story is related in the following paper read by Mr. Merwin of this laboratory at a meeting of the New England Association of Food and Drug Officials in Boston on February 23, 1949:

POISONOUS CRAYONS

R. T. MERWIN

The unusual extent of wax crayon poisoning among children in Connecticut is not generally known outside medical circles but it is of concern to officials charged with safeguarding public health. Generally, medical opinion attributes the poisoning to the dyes used in the crayons, and every hospital case of which we have record suggests that an aniline dye is the cause. But so far, there is no absolute proof that such is the fact. On the contrary, we believe that aniline dye poisoning was probably not the cause of illness in the one case we investigated.

During the past year and a half there have been five hospital cases in Connecticut that we know about—one each in Hartford, Middletown, Wethersfield, Newington and Broadbrook. How many other cases there have been, not requiring hospital care, we have, of course, no means of knowing. Without doubt there have been other less severe cases, unrecorded and now forgotten, perhaps wrongly diagnosed as temporary illness.

The five cases were all alike in the onset of symptoms. Shortly after they chewed and swallowed pieces of colored wax crayon, the children turned blue at lips and finger-tips; they became listless, and as poisoning progressed, breathing became more rapid, there was a rise in pulse rate and generalized cyanosis developed. Hospital diagnoses were methemoglobinemia.

Emergency treatment consisted of the intravenous injection of methylene blue and the administration of oxygen. In one case, gastric lavage was also resorted to and pieces of yellow and orange crayon were recovered from the child's stomach. In every case the prompt treatments resulted in quick recoveries with apparently no permanent ill effects. Fortunately, there have been no fatalities from wax crayon poisoning, so far as we know, but the possibility remains, and colored wax crayons may still remain a health hazard to children who innocently chew and swallow them.

The case in which we were asked to help by analyzing the wax crayons used by the child occurred in Hartford in December, 1948. The two and a half year old boy was in his crib playing with his crayons and a coloring book while his mother was in the kitchen getting his breakfast. When she returned to the room for him, she noticed that his lips and hands were colored blue and that he had been chewing the crayons. He seemed quite ill, was lethargic and showed a tendency toward unconsciousness. The family doctor was immediately called and the child was admitted to the hospital at 9:45 A.M. Emergency treatment resulted in prompt recovery.

Dr. Alfred Burgdorf, Hartford City Health Officer, submitted to us three pieces of crayon chewed by the child. From these we extracted orange, yellow and yellow-orange dyes. The orange and yellow-orange dyes proved to be azo dyes, that is, those that could readily be uncoupled to form colorless compounds. They might loosely be called aniline dyes because they are derivatives of aniline, but we could find no "coal-tar" dyes known to be toxic in any of the crayons. Tests of the yellow dye proved the absence of any prohibited color. It seemed unlikely, therefore, that the dyes in question could have caused the child's illness.

A spectrographic examination proved all the crayons contained a filler, or mineral constituent, and this was identified as kaolin, which is harmless enough, since it is chiefly aluminum silicate. But two of the crayons, the orange and the yellow-orange, showed the presence of zinc and barium in addition to kaolin. If zinc were present as the oxide it would not be poisonous but if it were present as lithopone it would be decidedly so. Further analysis showed that both zinc sulphide and barium sulphate were present. Lithopone is produced by the simultaneous precipitation of barium sulphide and zinc sulphate and in the orange crayon we found 8.56 per cent of barium sulphate and 2.54 per cent of zinc sulphide. The yellow-orange crayon had 18.80 per cent of barium sulphate and 3.46 per cent of zinc sulphide.

To see if crayons of the same popular brand (Bradley's Tru-Tone No-Roll Crayons, made by Milton Bradley Company, Springfield, Massachusetts) also contained lithopone, we made tests of all comparable colors from a box submitted to us at the same time we received the child's crayons. We confess we were not surprised to find lithopone absent. The fresh box of crayons evidently had been made at a much later date.

Normally, gastric juice contains 0.3 to 0.4 per cent hydrochloric acid and it is sufficiently strong to liberate hydrogen sulphide from zinc sulphide. So we have concluded that the case we were asked to investigate, from the evidence submitted, was one of hydrogen sulphide poisoning. In an attempt to prove its poisonous nature, we fed a 50 gram rat in the biochemistry laboratory a 50 milligram portion of the yellow-orange crayon mixed with food. We also fed another rat a similar portion of crayon which did not contain lithopone.

Fortunately for the rat, our experiment failed. For, whereas the rat fed the food without lithopone ate very nearly all her portion the first night, the other rat, fed with crayon containing lithopone, proved without much appetite. In fact, she nibbled only part of her food the first night, and had eaten only half by the second night. However, her obstinacy probably saved her from serious illness. We would like to describe all the various symptoms we were trying to produce in her but she wouldn't cooperate.

However, it is possible for methemoglobin to be formed in the blood and not to show any symptoms of its presence. The conversion of a third of the hemoglobin causes only very slight symptoms. So the rat, in eating little food at any one time, would not be affected. But if she had eaten all of it within a few minutes the same symptoms the child had might have appeared in the rat.

Similar biological methods of testing the toxicity of its crayons had been undertaken by the manufacturer last Fall. Orange and yellow crayons containing lakes of the dyes para red, chlorinated para red and benzidine yellow were fed to groups of rats, dogs and cats for several days. But results were negative, for the feeding experiments failed to produce methemoglobinemia.

The conclusion drawn from the tests was that the occasional toxicity of wax crayons among children may be classed as a rare idiosyncrasy. However that may be, it will be noticed that there is one possibility that may have been overlooked. The crayons tested for the manufacturer may not have contained lithopone.

We do not believe lithopone is a normal ingredient of crayons, for it is considerably more expensive than kaolin and its toxicity is well established. It is quite likely, however, that one batch of crayons was formulated with lithopone by mistake and thousands of colored wax crayons containing this harmful ingredient are now among children's possessions.

From our experience we would suggest that, when chemists are asked to examine colored wax crayons submitted as evidence in poisoning cases, the first thing they do is to look for sulphide. Among the many brands of crayons, lithopone is not likely to be present. But if it is, the "rotten egg" odor obtained when the crayons are acidified with dilute hydrochloric acid should be proof enough of a poisonous ingredient.

The three samples examined by us, all crayons made by Milton Bradley Co. of Springfield, Mass., were the following:

5330. Bradley's Tru-Tone Crayons. This sample consisted of chewed-on portions of three crayons: One orange, one yellow-orange and one yellow. The orange crayon appeared to consist of a mixture of wax, lithopone, kaolin and an orange dye resembling Orange SS; analysis showed 8.56 per cent of barium sulphate and 2.54 per cent of zinc sulphide. The yellow-orange crayon was similar in composition, with a yellow dye added; barium sulphate was 18.80 and zinc sulphide 3.46 per cent. The yellow crayon contained wax, kaolin and a yellow dye, but no lithopone.

5331. Bradley's Tru-Tone Crayons. This was an unused box containing eight crayons, respectively red, orange, purple, yellow, green, blue, brown and black in color. None contained any lithopone, and only the yellow crayon was of the same composition as the crayons in 5330.

6152. Junior No-Roll Crayons. No lithopone was found in any of these crayons.

Emulsifiers for Ice Cream Mixes

Three such products were submitted by the Commissioner. One was a mixture of natural materials, but the other two were synthetic preparations of the type whose use as "shortening extenders" and "bread softeners" has been recently promoted. They are sold under trade names such as "Tweens" and "Spans"; the "Tweens" are mixed fatty acid esters of sorbitan and polyoxyethylene and the "Spans" are fatty acid esters of sorbitan only. There is some doubt as to the innocuousness of these preparations because, while they are relatively inert physiologically, there is some evidence from animal experiments that they modify fat absorption and enhance the absorption of certain poisons, and that some of them cause gastrointestinal irritation and disturb bile secretion.¹ The products submitted by the Commissioner were the following:

F.H.-845. McGraw Chemical Emulsifier. Labelled "A pure polyoxy-alkylene derivative of tristearated hydrogenated glucose."

F.H.-846. Stabilizer. Declared ingredients were "gelatine, corn starch, tapioca flour and gum tragacanth."

F.H.-844. Tween-80. Labelled "Sorbitan polyoxyethylene monoöleate."

¹ Lehman, *Bulletin of the Association of Food and Drug Officials of the United States*, **14**, 82 (1950).

Other Miscellaneous Products

The analysis of many of these samples is not of permanent interest, but the following eight samples may be worth recording:

K.F.-390. Chocolate Powder. Johnson Dairy Food, Boston, Mass. Analysis was as follows: Moisture, 4.15; ash, 8.72; fat, 10.53; invert sugar, 25.04, and starch, 12.25 per cent; refraction of fat, 40°C., 47.1; Reichert-Meissl value of fat, 0.9. There is no such thing as "chocolate powder"; this sample was a mixture of cocoa and sugar with possibly some added starch.

E.C.-205. Downey's Honey Butter. Honey Butter Products Corp., Ithaca, N. Y. Labelled "A delicious milk and honey product. A delicious blend of selected honey and fresh creamery butter." Analysis showed total sugars, 71.08, and fat, 6.27 per cent. The fat had a butyro refraction of 43.5 at 40°C., a Reichert-Meissl value of 28.1 and a Polenske value of 2.5, all of which are within the limits for pure butter fat. These figures indicate that the product is about 92 per cent honey and 8 per cent butter. It is not "honey butter," but a buttered honey.

E.S.-383. Frost-Quick Cake Frosting, Chocolate Flavor. 6 O'Clock Foods, Inc., Norristown, Pa. Declared ingredients were "sugar, cocoa, corn syrup, vegetable shortening, water, imitation flavor, 1/10 of 1% benzoate of soda." Sample was passed.

E.S.-382. Frost-Quick Cake Frosting, Vanilla Flavor. 6 O'Clock Foods, Inc., Norristown, Pa. Declared ingredients were "sugar, vegetable shortening, corn syrup, water, nonfat milk solids, cornstarch, imitation flavor, 1/10 of 1% benzoate of soda." Sample was passed.

K.N.-114. Hartigan's Potato Chips. Hartigan Food Products Co., Waterbury, Conn. Declared ingredients were "Selected potatoes, pure vegetable oil or shortening, salt." This statement is not sufficiently specific concerning the "oil or shortening" used.

E.C.-267. Imitation Raspberry Flavored Peach Filling. Orchard Food Products Co., Boston, Mass. This product was being sold completely unlabelled, and was therefore misbranded.

K.C.-126. Kreme O'Soy Drink. Madison Foods, Madison College, Tenn. Labelled "A tasty milk-like drink, homogenized, made of soy beans, soy oil, calcium phosphate, dextrose, with water added." Analysis of this product, as compared with normal cow's milk, was as follows:

	<i>Kreme O'Soy,</i> <i>per cent</i>	<i>Cow's milk,</i> <i>per cent</i>
Total solids	8.29	12.7
Ash	0.45	0.7
Protein	1.33	3.8
Sugar	1.95	4.5
Fat	2.33	3.6

Nutritionally, "Kreme O'Soy" is more like a watered milk than it is like either whole milk or skim milk, but it is a milk-like product and is not filled milk within the meaning of G.S. 3214. The sample was therefore passed.

K.N.-234. Tietolin Quality Binder. First Spice Mixing Co., Inc., New York, N. Y. Literature submitted with this product stated that "Tietolin is a binder and improver for meat products and sausages", "Tietolin improves meat with highly binding albumen, just as nature does bullmeat", "Tietolin supplements the lack of binding albumen in cowmeat, fat and pork trimmings", etc., but nowhere declared just what the ingredients of "Tietolin" were. Analysis showed moisture, 5.69; protein, 37.64; fat, 0.22; fiber, 0.11; ash, 7.95, and carbohydrates by difference, 48.39 per cent. This product was apparently nothing but dry skim milk, whose use in frankforts to increase water-holding capacity is well known. The use of more than 3.5 per cent of it in frankforts would cause the frankforts to be adulterated.

DRUGS AND DEVICES

Boric Acid Solution

In connection with a nation-wide survey conducted by a committee of the American Pharmaceutical Association to determine the accuracy with which pharmacists compounded relatively simple prescriptions, our inspector had prescriptions calling for a 3 per cent solution of boric acid filled at five drug stores in New Haven and Hamden. These samples were sent to Dr. Samuel W. Goldstein of the Maryland State Department of Health, a member of the committee, who analyzed them. Three of the five samples came within ± 10 per cent of the concentration called for:

<i>No.</i>	<i>Pharmacy</i>	<i>Boric acid, per cent</i>
5422	Courtesy Drug Store, New Haven	3.46
5426	East Rock Cedar Hill Pharmacy, Inc., New Haven	3.31
5418	Hamden Pharmacy, Hamden	3.08
5424	Hope's Drug Store, New Haven	2.51
5419	Westville Pharmacy, New Haven	2.91

Cod and Halibut Liver Oils

Eleven samples of cod and halibut liver oils were submitted by the Commissioner; 10 of these were assayed spectrophotometrically for vitamin A, and by feeding to rats for their vitamin D content. Of the 11 samples, seven were passed and four did not meet U.S.P. requirements or their own claims. Analyses are given in Table 12.

TABLE 12. COD AND HALIBUT LIVER OILS

(U. S. P. requires not less than 850 units of vitamin A and 85 units of vitamin D per gram for cod liver oil.)

No.	Manufacturer and brand	Iodine number	Vitamin A, U.S.P. units per gram	Vitamin D	Remarks
J.C.-210	G. Fox & Co., Hartford, Conn. <i>Foxco Halibut Liver Oil</i>	122	5320 ¹	O. K.	Claimed 5,000 units A and 85 units D per capsule; O. K.
223	Lunds, Hamden, Conn. <i>Lunds Cod Liver Oil (Mint Flavored)</i>	161	820	O. K.	Pass.
215	Mead, Johnson & Co., Evansville, Ind. <i>Mead's Standardized Cod Liver Oil</i>	159	1564	O. K.	Labelled to contain not less than 1800 units of A and 175 units of D per gram; does not meet vitamin A claim; adulterated. (Control No. 145-147.)
214	Parke, Davis & Co., Detroit, Mich. <i>Parke Davis Haliver Oil</i>	140	7659 ¹	Not tested.	Does not meet vitamin A claim of 10,000 units/capsule; absorption curve shows an oxidized oil; does not meet U.S.P. requirement that halibut liver oil capsules be labelled to contain either 5,000 or 25,000 units of vitamin A; adulterated. (Control No. 3307740.)
224	E. L. Patch Co., Boston, Mass. <i>Patch's Cod Liver Oil (Flavored)</i>	163	2436	Not tested.	Vitamin A more than 20 per cent in excess of claim of 2,000 units/gm. but pass.
212	Premo Pharmaceutical Lab., Inc., New York, N. Y. <i>Cod Liver Oil Tablets</i>	77	4339 ²	Test inconclusive.	Labelled 5,000 units of vitamin A per tablet; adulterated. (Control No. 2015.)
211	E. R. Squibb & Sons, New York, N. Y. <i>Squibb Cod Liver Oil</i>	160	1704	Not tested.	Labelled 1,800 units/gm. vitamin A; pass.
222	Tailby-Nason Co., Boston, Mass. <i>Nason's Cod Liver Oil</i>	166	744	O. K.	Below standard in vitamin A; adulterated. (Control No. 36200.)
216	Upjohn Co., Kalamazoo, Mich. <i>Super D Cod Liver Oil</i>	159	2232	Not tested.	O. K.
209	White Laboratories, Inc., Newark, N. J. <i>White's Cod Liver Oil Concentrate Capsules</i>	151	12260 ¹	O. K.	Labelled 12,480 units A and 1,248 units D per capsule; pass.

¹ Per capsule.

² Per tablet.

Neo Silvol Solution

Five prescriptions calling for a 2 per cent solution of Neo Silvol were filled at drugstores in New Haven and sent to Dr. S. W. Goldstein for analysis, in connection with the same survey referred to under "Boric Acid Solution". Three of the five samples fell within ± 10 per cent of the concentration called for:

<i>No.</i>	<i>Pharmacy</i>	<i>Neo Silvol, per cent</i>
5423	Courtesy Drug Store	2.68
5427	East Rock Cedar Hill Pharmacy, Inc.	2.21
5425	Hope's Drug Store	2.15
5421	Liggett's Drug Store	1.95
5420	Westville Pharmacy	2.22

Riboflavin Tablets

Riboflavin or vitamin B₂ tablets are required to contain between 95 and 120 per cent of the labelled quantities of this vitamin. Four official samples were examined; two met the U.S.P. requirements and the other two came sufficiently close thereto to be passed. Analyses were as follows:

<i>No.</i>	<i>Manufacturer</i>	<i>Riboflavin, mgm./tablet</i>	
		<i>Declared</i>	<i>Found</i>
P.S.-989	Abbott Laboratories, North Chicago, Ill.	1	0.90
P.S.-4	American Home Products Co., New York, N. Y. 5	5	4.90
P.S.-24	Lederle Laboratories, Inc., New York, N. Y.	5	4.45
P.S.-995	Eli Lilly & Co., Indianapolis, Ind.	5	5.30

Rubber Prophylactics

Seventeen samples of rubber prophylactics were submitted by the Commissioner. Fifteen were passed; two had pinholes in them and were condemned:

J.C.-245. Optimus. Robert J. Pierce, Inc., New York, N. Y. One unit out of three had a pinhole.

W.S.-4. Three Knights. Goodwear Rubber Co., New York, N. Y. One unit out of 12 had a small hole.

Miscellaneous Drugs

Sixteen official and 15 unofficial samples were examined. Nine samples were adulterated or misbranded and 22 were passed. The following are of interest:

H.P.-123. Athlete's Foot Remedy. This was a mixture of approximately 38 per cent turpentine and 62 per cent linseed oil.

4694. Genuine Russian Mineral Oil. This sample was submitted in a police case. The material in the bottle appeared to be prune juice instead of mineral oil.

J.S.-10. Jay's Worm Syrup. Commerce Drug Co., Inc., Brooklyn, N. Y. Labelled "An effective preparation for the removal of pin worms, round worms. Contains spigelia, senna, oils of caraway and anise. Caution: Avoid using when there are signs of appendicitis (such as vomiting or acute abdominal pain)." Spigelia, also known as "pinkroot", "Maryland (Carolina or Indian) pink", "worm-grass", "worm-weed", "American wormroot" and "star bloom", although no longer an official drug, has been recognized as a worm remedy and, as the sample was properly labelled with warning statements, it was passed.

J.C.-207. Kyron, a Dietary Supplement. This product consisted of two types of tablets: One was ivory-colored and labelled to contain a long list of vitamins, while the other type was pinkish red and labelled as containing protein hydrolysate, tricalcium phosphate and malt diastase. Each ivory tablet was declared to contain 140 U.S.P. units of vitamin D; assay by feeding to rats showed that the tablets were deficient in vitamin D.

J.S.-9. Le Purgative Bassini. G. Sallusto Co., Brooklyn, N. Y. Declared ingredients were "Aloe powd. Rhammus Purshiana Podophyllia Extract of Belladonna Leaves." Because the common name "cascara" was not used instead of "Rhammus Purshiana", because the quantity of atropine was not declared, and because not all statements on the label were given in English as well as Italian, the sample was misbranded.

6336 and 6361. Penick's Initial Line Wormseed American, Code No. BFP 1928. S. B. Penick & Co., New York, N. Y. These two samples were adulterated with 5.82 per cent of sand.

4696 and 4697. Prescription Nos. 236676 and 267382. These samples were from the same police case referred to under Sample 4694. They had been adulterated with denatured alcohol.

4695. Tancro Cough Syrup. This was another of the police samples. Comparison with an authentic sample of "Tancro Cough Syrup" showed that 4695 was adulterated with a coal tar distillate.

H.P.-129. Thiamine Hydrochloride Solution, 100 mgm. per cc. Drug Products Co., Inc., Passaic, N. J. This sample was submitted by a Meriden pharmacist because of a physician's complaint that he had given 1 cc. injections of it to three patients, with results in each case of the patient developing hives and an elevated temperature. The one vial submitted to us was forwarded to the U. S. Food and Drug Administration for examination. They found no evidence of the presence of pyrogens, but did find the solution to contain 131 per cent of its claimed dosage. They believed that the high concentration of thiamine, perhaps complicated by allergic factors, was responsible for the reactions observed.

8120. Unknown Capsule. This proved to be a 1.54 grain capsule of sodium diphenylhydantoinate ("Dilantin Sodium").

6279. Unknown Drug. The drug was 5.26 grain hexamethylenetetramine ("Methenamine") tablets.

H.P.-133. Unknown Liquid. Sample was an elixir of phenobarbital containing 0.42 gm./100 cc. of phenobarbital, prepared from sodium phenobarbital instead of from the acid form of the drug that is used in Elixir of Phenobarbital U.S.P.

H.P.-132. Unknown Prescription for Gallbladder and Liver Trouble. Sample consisted of two red coated pills, each of which contained 0.63 grain of phenobarbital, together with sodium salicylate and ox bile extract. A similar preparation is sold by McNeil Laboratories, Philadelphia, Pa., under the name of "Bisalco".

J.S.-16. Vi-Penta Drops. Hoffman-Laroche, Inc., Nutley, N. J. This multivitamin preparation was submitted by a druggist with a complaint that bottles of it "blew up". Investigation revealed that the manufacturer was adding a little "dry ice" to these drops to preserve them; probably what happened was that sometimes too much was added, with the result that when the bottles warmed up, the pressure of carbon dioxide developed was stronger than the bottles could withstand. The manufacturer agreed to substitute nitrogen gas for the carbon dioxide.

COSMETICS

Thirteen official and two unofficial samples of cosmetics were examined; 11 were passed and four were misbranded:

5333. Better Concentrated Shampoo. Better Brushes, Inc., Palmer, Mass. The chief ingredients were a sodium cocoanut oil soap and a synthetic wetting agent resembling sodium lauryl sulphate.

J.W.-72. Del Kem Protective Hand Cream. This was a vanishing cream—that is, a product made by causing an excess of stearic acid to react with a mixture of sodium and potassium hydroxides. Analysis showed water and perfume, 55.17, and soap and stearic acid, 14.83 per cent, with no free alkali. The pH was 7.4.

5770. Formula BX-97 Antiseptic Hair Tonic. Humbert Studios, Mobile, Ala. Declared active ingredients were pilocarpine hydrochloride and alcohol. Analysis showed pilocarpine hydrochloride, 0.58; other solid material (perfume, etc.), 0.14, and isopropyl alcohol, 27.60 per cent. Sample was misbranded because isopropyl alcohol was declared as "alcohol" unqualified, a term that applies properly to ethyl alcohol only.

H.P.-127. Hair Shampoo. This preparation was submitted to the Food and Drug Commission in connection with a new drug application, and was not analyzed. From the declared formula, the composition should be: Phenol, 1.00; precipitated sulphur, 3.99; sodium carbonate, 4.99; soap, 15.96, and mercuric chloride, 0.0022 grams per 100 cc.

H.P.-130. Hair Shampoo. This was similar to *H.P.-127*.

H.P.-140. Lilac Vegetal After Shave Lotion. Ed. Pinaud, Inc., New York, N. Y. Analysis showed total solids, 0.08; ash, 0.02, and alcohol, 64.95 per cent. This product was essentially only perfumed 65 per cent alcohol colored pale green. It contained a trace of what was apparently fine sand, but was passed.

H.P.-144 and 145. Marchand's Golden Hair Wash. Charles Marchand Co., New York, N. Y. Each sample consisted of a bottle of yellow liquid and a small envelope containing a white powder. The bottles were labelled "Used to lighten and brighten any shade of hair to impart highlights, also to make arm and leg hair inconspicuous." The liquid was a 5.95 per cent

solution of hydrogen peroxide; the powder was a mixture of the following composition: Sodium bicarbonate, 30.56; sodium carbonate, 27.98; sodium sulphate, 30.90; wetting agent of the sodium lauryl sulphate type, 1.06, and moisture, 9.50 per cent. The purpose of this powder—which was to be added to the liquid before using—was no doubt to neutralize the acidity of the hydrogen peroxide and promote penetration of the hair. This preparation was simply a peroxide bleach.

H.P.-143. Palmolive Shampoo. Colgate-Palmolive-Peet Co., Jersey City, N. J. This preparation was a light yellow perfumed soap solution.

H.P.-141. Perma-Nail, the Professional Base Coat. Perma-Nail Co., Burbank, Calif. According to Federal reports,¹ “Perma-Nail” “contained synthetic rubber of the Perbunan type and phenol-formaldehyde resin in methylethylketone”; the product was condemned in the Southern New York Federal District Court on the grounds that it “bore or contained a poisonous or deleterious substance which may have rendered it injurious to users under the conditions of use prescribed in its labelling.” Analysis of the present sample confirmed that the solvent was methyl ethyl ketone whose 2,4-dinitrophenylhydrazine melted at 113°C., and that phenol was liberated on evaporation of the solvent.

J.S.-15 and W.S.-28. Perma-Strate, the Original Cold Permanent Hair Straightener. Perma-Strate, Chicago, Ill. This preparation consisted of a jar of cream, a bottle of “special rinse” marked “B” and a bottle of “liquid pomade” marked “C”. The cream was a stearic acid type vanishing cream containing 7.13 per cent of ammonium thioglycollate and 1.36 per cent of free ammonia; the “special rinse” was a hydrogen peroxide solution, and the “liquid pomade” was light mineral oil, perfumed and colored orange.

Because a hair straightener is an article “intended to affect the structure . . . of the body of man,” it is a drug as well as a cosmetic within the meaning of the law, and therefore the “Perma-Strate” was misbranded because its label did not name the active ingredients.

J.S.-24. Vapon Shampoo. Vapon, Inc., Montclair, N. J. Labelled “Vapon Shampoo is a new cleansing agent derived from petroleum with the inflammable characteristics of alcohol. Do not use near an open flame.” Analysis showed it to be perfumed 92.80 per cent isopropyl alcohol. Since isopropyl alcohol is made commercially by reacting propylene gas derived from petroleum with sulphuric acid, the statement that “Vapon Shampoo” was “derived from petroleum” was correct. The sample was passed.

H.P.-124. Velora Cream. This sample was examined in connection with objectionable claims in newspaper advertisements; the label of the product itself was not objectionable.

H.P.-136. Westphal's Hair Color Remover Aid. Paul Westphal, Inc., New York, N. Y. Labelled “Imparts an artificial color—An excellent preparation for darkening gray or faded hair to a youthful looking color—For external use only—15% alcohol—Caution: This product contains

¹ *Notice of Judgment* 162 (October, 1949).

metallic salt. It is for external use only and must be used with care.” Analysis showed the preparation to be a perfumed aqueous alcoholic solution of lead acetate containing precipitated sulphur in suspension. Similar products, which depend on reaction between lead acetate and sulphur to form the black lead sulphide, have been reported before.¹

COLLABORATION WITH OTHER DEPARTMENTS

One thousand, five hundred and sixty-eight samples, not included in other reports from this laboratory, were analyzed for other Federal, State and Station departments. Distribution was as follows:

	<i>Samples</i>
U. S. Bureau of Customs (narcotic)	1
U. S. Geological Survey (water)	88
State Department of Health (narcotics)	2
State Department of Motor Vehicles (gasoline)	5
State Police	50
Station departments:	
Biochemistry	23
Botany	912
Entomology	146
Forestry	226
Genetics	48
Tobacco Laboratory	67
	1,568

Examinations for the State Police were largely spectrographic analyses of paint in motor vehicle collision cases.

BABCOCK GLASSWARE, ETC.

As required by Sections 3191 and 3240 of the General Statutes, milk and cream test bottles and milk pipettes, and check thermometers used in milk pasteurizing plants, have been examined as follows:

	<i>Pieces</i>	<i>Incomplete or inaccurate</i>
Babcock glassware	1,572	168
Thermometers	115	5
	1,687	173

¹ *Conn. Agr. Expt. Sta. Bul.* **373**, 525 (1935); **475**, 463 (1943).

INDEX

	<i>Page</i>
Albacore	24
Alcohol in freezer liquid	15
Anthranilic acid in oils	23
Apple juice	26, 27
Applesauce	25
Apricot preserve	27
Arsenic in spray residues	42
"Athlete's Foot Remedy"	58
Babcock glassware, calibration	62
Baked products	6
"Banana flavored patties, Weston's"	6
"Bassini Purgative"	59
Beer, root, extract	16, 17
"Better Concentrated Shampoo"	60
Beverages, carbonated	6
"Bireley's Drink, Berry Flavor"	7
"Bisalco"	60
Black pepper	40
Blueberries	15, 26
Boric acid solution	56
Butter	15, 17
Butter cookies	6
Butter creams	12, 14
Butter, honey	55
Butter, peanut	18
Butter, pecan nut	18
Butter rings	6
Butters, nut	18
Cake frosting	55
Cake mix	15, 26
"Cakorettes"	15
"Cala-Orange"	7
Calibration of Babcock glassware and thermometers	50
Candy	9, 10, 13
Carbonated beverages	6
Cheese	8, 15
Cherries	15
"Cherry Cider Drink"	7
Chewing gum	12
Chocolate	15
Chocolate coated fruits in "cordial"	9, 10
Chocolate powder	55
Chocolate syrup	42
Cider	26, 27
Citron	15
"Coca-Cola"	15
Cocoa	15
Cocoanut oil	18
"Coconut Gems, Weston's"	6
Cod and halibut liver oils	56, 57
Coffee	9
Coffee cake fruit mix	26
Coffee syrups	42, 43
Collaboration with other departments	62
Condensed milk	15, 28
Condiments and spices	40
Confectionery	9, 10, 13
Contaminated and decomposed foods	15
"Cordial" fruits	9, 10
Corn meal	15
Corn oil	20

INDEX—Continued

	<i>Page</i>
Cosmetics	60
"Cough Syrup, Tancro"	59
Crayons, poisonous	51
Cream	28
"Cream, Del Kem Protective Hand"	60
"Cream, Velora"	61
Deceptive packaging	16
Decomposed and contaminated foods	15
"Del Kem Protective Hand Cream"	60
"Dietetic" foods	9, 13
"Dilantin" capsule	59
Dressing, French	34
Dressing, Russian	34
Dressing, salad	32, 33
Dressing, Thousand Island	34
Drink, orange	8
Drugs	56
Drugs, miscellaneous	58
Eggs	16
Egg white, frozen	16
Elixir phenobarbital	59
Emulsifiers for ice cream mixes	54
Extracts and flavors	16
Filling, pie	55
Fish	24
Fish liver oils	56, 57
Flavor, Maraschino	17
Flavor, orange	17
Flavor, rum	17
Flavor, rye	17
Flavor, vanilla	17
Flavor, vanilla, imitation	16
Flavors and extracts	16
Flour, rye	15
Flour, wheat	15, 25
Foods, miscellaneous	50
Frankforts	28
Freezer liquid	15
"Freezette"	15
French dressing	34
"Fresh-A Orange"	7
Frosting, cake	55
Fruit, canned	25
Fruit juices	26
Fruit mix, coffee cake	26
Fruits in "cordial", chocolate coated	9, 10
Fruit syrups	42
Gallbladder and liver remedy	60
Glassware, Babcock, calibration	50
Grape juice	26, 27
"Grape Nectar"	7
"Grape Smash Punch"	8
Gum, chewing	12
Gum drops	14
"Hair Color Remover Aid, Westphal's"	61
Hair tonic	60
"Hair Wash, Marchand's Golden"	60
Halibut and cod liver oils	56, 57
Hamburg	28
"Hand Cream, Del Kem Protective"	60

INDEX—Continued

	<i>Page</i>
Herring	24
Honey butter	55
Horseradish	40
Ice cream mixes, emulsifiers for	54
Insect infestation	15
Jams and jellies	27
"Jay's Worm Syrup"	59
Jellies and jams	27
Juice, apple	26, 27
Juice, grape	26, 27
Juice, lemon	26, 27
Juice, orange	27
Juice, prune	26, 27, 58
Juice, tomato	45, 46
Juices, fruit	26
"Kreme O'Soy Drink"	55
"Kyron"	59
Lead in spray residues	42
Lemon juice	26, 27
Licorice	14
"Lilac Vegetal After Shave Lotion"	60
Linseed oil	18
Lithium chloride salt substitutes	50
Lithopone in crayons	51
"Lobster, rock"	24
"Lotion, Lilac Vegetal After Shave"	60
Macaroni	40
Maple syrup	43
Maraschino flavor	17
"Marchand's Golden Hair Wash"	60
"Mayfair Sandwich, Weston's"	6
Mayonnaise and salad dressings	32, 33
"McGraw Chemical Emulsifier"	54
Meat and meat products	28
Merwin, R. T., paper on "Poisonous Crayons"	51
Methenamine tablets	59
Milk and milk products	15, 28
Milk, condensed	15, 28
Milk powder	15
Milk, vitamin D	29, 30
Mineral oil, Russian	58
Miscellaneous drugs	58
Miscellaneous foods	50
Mouse excreta in foods	15
Nectar, grape	7
"Neo Silvol" solution	58
Noodle soup	15
Nut butters	18
Nuts	15
Oil, cocoanut	18
Oil, corn	20
Oil, linseed	18
Oil, mineral, Russian	58
Oil, olive	18, 19
Oil, peanut	18
Oils, blended, table	21
Oils, cod and halibut liver	56, 57
Oleomargarine	17

INDEX—Continued

	<i>Page</i>
Olive oil	18, 19
Olives	46
Orange drink	7, 8
"Orange Dry, Miscoe"	7
Orange flavor	17
Orange juice	27
Orangeade	7, 8
"Palmolive Shampoo"	61
Pancake syrups	43, 44
Peaches, canned	25, 26
Peach preserve	27
Peanut butter	18
Peanut oil	18
Pears, canned	25, 26
Pecan nut butter	18
Pecans	15
Pepper, black	40
"Pepsi-Cola"	15
"Perma-Nail"	61
"Perma-Strate"	61
Personnel changes	5
Phenobarbital elixir	59
Pickles	29
Pie filling	55
Piecrust mix	15
"Pineapple Wafers, Weston's"	6
Plums, canned	25, 26
Popcorn	32
Pork spare rib	28
Potato chips	55
Potatoes	15
Powder, chocolate	55
Prescriptions	59
Preserve, apricot	27
Preserve, peach	27
Preserve, strawberry	28
Prophylactics, rubber	58
Prune juice	26, 27, 58
"Purgative Bassini"	59
Raisins	15
Riboflavin tablets	58
Root beer extract	16, 17
Rubber prophylactics	58
Rum flavor	17
Russian dressing	34
Rye flavor	17
Rye flour	15
Salad dressings and mayonnaise	32, 33
"Sandwich, Weston's Mayfair"	6
Sauce, spaghetti	39
Sauce, tartare	34
Sardines	24
Sauerkraut	35, 36
Scallops	24
Shampoos	60, 61
Shaving lotion	60
Shellfish	24
Shoulder, smoked	15
Silver protein solutions	58
Smoked shoulder	15

INDEX—Concluded

	<i>Page</i>
Soup, noodle	15
Spaghetti and spaghetti sauce	39
Spare rib, pork	28
Spices and condiments	40
Spray residues	41
Squalene added to vegetable oils	20
Squash	46
"Stabilizer"	54
Strawberries, frozen	26
Strawberry preserve	28
Summary of materials analyzed	5
"Sunlife Grape Nectar"	7
Syrup, chocolate	42
"Syrup, Jay's Worm"	59
Syrup, maple	43
"Syrup, Tancro Cough"	59
Syrup, vanilla	42
Syrups	42
Syrups, coffee	42, 43
Syrups, fruit	42
Syrups, pancake	43, 44
"Tancro Cough Syrup"	59
Tartare sauce	34
Tea	9
Thermometers, calibration	50
Thiamine hydrochloride solution	59
Thousand Island dressing	34
"Tietolin Quality Binder"	56
Tomato juice	45, 46
Tomato paste and purée	46, 47
Tomato purée and paste	46, 47
Tomatoes, canned	15, 45
Tonic, hair	60
Tuna fish	24
Turkey	15
"Tween-80"	54
Vanilla flavor	17
Vanilla flavor, imitation	16
Vanilla syrup	42
"Vapon Shampoo"	61
Vegetable products	45
"Velora Cream"	61
Vinegar	48, 49
"Vi-Penta Drops"	60
Vitamin B ₁ solution	59
Vitamin B ₂ tablets	58
Vitamin D in oils	56, 57
Vitamin D milk	29, 30
Vitamin preparation, multiple	60
"Wafers, Weston's Pineapple"	6
"Wash, Marchand's Golden Hair"	60
Water	48
"Westphal's Hair Color Remover Aid"	61
"Westsal"	51
Wheat flour	15
"Worm Syrup, Jay's"	59
Wormseed	59

